AUTHOR INDEX

A

Aamodt, L., 222, 248
Abribat, M., 412
Ackerman, I. B., 368
Adams, J. B., 6
Adams, N. I., Jr., 403
Adamson, D. M., 361
Addario, M. M. I., see Indovina Addario, M. M.
Ahrens, L. H., 410, 424, 425, 426, 435, 436
Aitken, A. L., 259, 260
Aitken, K. L., 416
Aizu, K., 241
Ajzenberg, F., 18
Albert, R. D., 55
Alburger, D. E., 55, 434
Alder, F., 34
Alderman, I. M., 368, 386
Aldrich, L. T., 89, 407, 408, 417, 425, 426
Alei, E., 233
Alexander, P., 390
Alford, K. L., 287
Alinder, E., 306
Allan, D. W., 420, 439
Allen, A. J., 380
Allen, B. M., 385
Allen, J. G., 383
Allen, J. R., 338
Allison, I. S., 432
Allison, S. K., 316, 328, 331, 340, 344
Almy, G. M., 28
Alpen, E. L., 383
Alper, C., 368, 370
Alpher, R. A., 420, 440, 441, 445
Alt, H. L., 391
Alter, A., 381
Altland, P. D., 377
Altman, K. I., 368
Amaldi, E., 277
Amarasingham, C., 388
Ambrosino, G., 182
Ames, D. P., 60, 406
Amstutz, G. C., 407
Anderson, C. D., 191, 277
Anderson, E. C., 56, 382, 383, 412, 413, 429, 430, 431, 432
Anderson, H., 222, 228, 232, 233
Anderson, K., 147, 150
Anderson, R. S., 388
Andrew, E. R., 45, 46
Andrews, G. A., 382
Andrews, H. L., 390
Angell, C. E., 228, 232
Anger, H. O., 379
Annis, M., 288
Antevs, E., 431, 432
Armenteros, R., 285, 286, 287, 288, 294, 295
Arndt, R. H., 411
Arnold, J. R., 405, 406, 412, 413, 414, 429, 430, 431
Arnold, W. H., 294, 304
Aron, W. A., 316, 329
Arrhenius, G., 429
Arrol, W. J., 410, 422
Arvy, L., 364
Asaro, F., 157-90; 159, 172, 174, 175, 176, 177, 178, 183
Asayama, T., 407
Ascoli, R., 151
Ascoli Balzanelli, A., 151
Ashizawa, T., 411
Ashkin, J., 222, 227, 228, 230, 231, 232, 315, 316, 324, 328, 329, 340
Ashler, F. M., 364
Ashwell, G., 362, 365, 366
Asling, C. W., 381
Astbury, J. P., 282, 288
Aswathanarayana, U., 415
Atkin, D., 408
Audric, D. N., 430
Auerbach, S. H., 382
Augustinsson, K., 369
Aurand, K., 378, 389
Auskaps, A. A., 386
Austern, N., 15, 16, 17, 25
Austin, M. K., 379
Austing, M. E., 361
Avery, E., 106
Ayer, H. E., 411
Azcona, J. M. L., de, see López de Azcona, J. M.

B

Bacher, R. F., 168, 235, 238, 239, 244
Backus, M. M., 428
Bacq, Z. M., 368, 386, 387, 388
Baddiley, J., 386
Baglioni, T., 369
Bähnisch, I., 404
Baillouw, J., 294, 304
Baker, J. M., 34
Bakker, C. J., 58, 328, 331
Baldinger, E., 104, 108, 343
Baldwin, G. C., 23
Ball, A. F., 406
Ballentine, R., 57
Ballin, J. C., 357, 368
Balzanelli, A. A., see Ascoli Balzanelli, A.
Bane, H. N., 378
Baranovskaya, N. V., 402, 423
Barbera, L., 407
Barendsen, G. W., 429, 430
Barkas, W. H., 346
Barker, H., 429, 430
Barker, K. H., 285, 286, 287, 288
Barnard, R. D., 369
Barnes, R. G., 34, 35
Barnes, S., 228, 232
Barnothy, J., 52, 54
Barnum, C. P., 391
Baroni, G., 277
Barron, E. S. G., 354, 355, 356, 359, 361, 363, 364
Bartholomew, R. M., 52, 58, 72
Bartlett, H. H., 431
Barton, G. W., 168
Basinger, C., 383
Baskin, R., 339, 342
Bassett, H. G., 96
Bassi, P., 155
Bassin, M., 378
Bassompierre, A., 45
Bate, G. L., 416, 417, 439
Bates, D. R., 344
Batt, O. D., 361, 385
Battey, J., 174
Battell, W. J., 99
Bauminger, R., 406
Bay, Z., 54, 104, 107, 108, 145, 152
Bayly, J. G., 52, 54, 59
Beamer, W. H., 406
Beer, K. E., 407, 408
Begemann, F., 60, 406, 418
Beiser, A., 274
Beling, J. K., 174
Bell, C. G., Jr., 412
Bell, G. I., 346
Bell, P. R., 54, 58, 63
Bell, R. E., 93-110; 54, 58, 98, 100, 101, 102, 104, 105, 208
Bellamy, E. H., 34
Benfield, A. E., 434
Benjamin, B. M., 34
Bennett, L. R., 388
Benoist, P., 405
Bentley, W. C , 409
Berestetski, V. B., 211, 212
Berger, M., 272, 273, 385
Bergquist, L., 368, 384
Beringer, R., 106, 192
Bernardini, G., 235, 236, 237, 238, 239, 240, 244, 248, 262, 266
Bernas, R., 159
Bernert, T., 427

Bernstein, W., 57, 134
Beroni, E. P., 408
Berthelot, A., 168, 180, 405
Bertolini, G., 343
Bethe, H., 233, 315, 316, 324, 328, 329, 340
Bethe, H. A., 14, 16, 25, 26, 29, 168, 179, 233, 266, 317
Bethell, F. H., 366, 385
Bettoni, M., 343
Betz, H., 361, 384, 386
Bew, E., Jr., 391
Bhabha, H. J., 317, 318, 319
Bhattacharya, K. L., 381
Bianchi, A. M., 155
Bier, M., 356
Billen, D., 361
Bingemann, M. E., 368, 384
Binggeli, E., 411
Binhammer, R. T., 388
Bink, N., 380
Birch, F., 403, 434, 435, 436, 437, 438, 442, 443
Birge, R. W., 152
Birks, J. B., 111, 114, 115, 120, 122, 124, 126
Bishop, G. R., 63
Bishop, M. E., 121
Bisi, A , 343
Biswas, S., 179, 180
Bitterli, P., 430
Bittman, L., 117, 123, 127
Bizard, C., 408
Bjørnerud, E. K., 294
Black, L. D., 129
Blackett, P. M. S., 191, 277
Blair, H. A., 360, 381
Blair, J. S., 261, 262, 263
Blandin-Vial, J., 159
Blaser, J., 222, 227, 288, 232
Blatt, J. M., 14, 18
Blau, H., 412, 420, 429
Bleaney, B., 34
Bleuler, E., 52, 54, 194
Blewett, J. P., 1-12; 5
Blewett, M. H., 1
Blifford, I. H., 411
Bloch, F., 42, 320
Bloch-Frankenthal, L., 385
Block, M. M., 254, 255
Bloembergen, N., 42, 43, 44, 45, 328, 331
Blomgren, R. A., 379
Bloom, W., 351
Blount, H. C., Jr., 367
Blum, J. M., 405
Blunck, O., 341
Boag, J. W., 381
Boato, G., 424, 443
Boche, R. D., 377
Bodansky, D., 222, 228, 232
Boecker, W. S., 416, 417, 418
Boever, A., 411
Bogaardt, M., 328
Boganik, N. S., 415
Bohlander, A., 360
Bohlin, N. J. G., 379
Bohr, A., 28, 172, 175, 178, 183, 185, 332
Bohr, N., 168, 344
Boiffard, J. A., 364
Boley, F. I., 55
Bonanomi, J., 119, 133
Bond, V. P., 379, 384, 387, 388
Bonet-Maury, P., 378, 379, 388
Bonetti, A., 306
Borkowski, C. J., 53
Bortner, T E., 343
Bose, A., 381
Bose, R., 415
Bothe, W., 105
Bothwell, J., 358
Botkin, A. L., 361, 385
Bouissieres, G., 60
Bowden, B. V., 166
Bowen, E. J., 124
Bowen, I. S., 445
Bowen, T., 339
Bowers, J. Z., 392
Bowers, K. D., 34
Bowie, S. H. U., 409
Boyd, C. A., 426
Boyd, G. E., 73
Boyd, M. J., 368, 370
Brabant, J. M., 407
Brace, K. C., 390, 391
Bradt, H. L., 194
Branyan, C. E., 58
Braun, H. A., 383
Bray, P. J., 34, 45
Brecher, G., 368
Breit, G., 224
Brennan, J. T., 380
Bridge, H., 287, 288, 289, 304
Bridgforth, E. B., 367, 377, 392
Briggs, G. H., 157, 166
Brin, M., 369
Brinkman, H. C., 344
Brix, P., 36
Brobeck, W. M., 4
Broda, E., 56
Broecker, W. S., 413, 414
Brolley, J. E., Jr., 77
Broniewski, A., 169
Brooks, R. E., 355
Brosi, A. R., 58, 62
Brower, D., 63
Brown, F., 52, 58, 68, 72, 73
Brown, H., 90, 403, 407, 408, 410, 419, 420, 424, 426, 435, 436, 441, 442, 443, 446
Brown, J. H., Jr., 408
Brown, K. L., 13
Brown, M. B., 387
Brown, R., 55, 58
Brown, R. H., 277
Brown, R. M., 45
Brown, S., 216
Brown, S. C., 56, 57, 202, 216
Brown, W. M. C., see Court Brown, W. M.
Brownell, G. L., 58, 63
Broyles, C. D., 62
Brucer, M., 382
Brueckner, K., 222, 224, 225, 227, 229, 231, 241, 248, 264, 266
Brues, A M., 368, 389
Brummit, H., 382
Bruner, H. D., 382
Bube, R. H., 136
Buchanam, J. S., 294, 302, 310
Buchanan, D. J., 367, 377, 388, 392
Bucher, W. H., 440, 443
Buck, W. L., 129, 131
Buckaloo, G. W., 390
Buddington, W. G., 360
Budini, P., 332, 337
Budy, A. M., 378
Buffa, P., 358
Bullard, E. C., 420, 436, 437, 439, 443
Bunting, C. H., 367
Burch, P. R., 383, 403
Burg, C., 367, 368
Burke, A. W., Jr., 388
Burke, B. F., 34
Burke, W. H., Jr., 429, 430
Burkhardt, J. L., 20, 21, 27
Burling, R. L., 415, 419, 440, 445
Burn, J. H., 369, 370
Burnett, W. T., Jr., 388
Burr, J. G., Jr., 56
Burtt, B. P., 60
Burwell, J. R., 285, 286, 287, 293
Busch, H., 358
Bush, S. G., 383
Butler, C. C., 285, 286, 287, 288, 308
Butler, C. L., 370
Butler, W. A., 28
Buttlar, H. v., 406, 418, 428
Byers, S. O., 355

C

Caceres, E., 389
Cachon, A., 285, 288
Cahen, L., 415
Calvery, H. O., 383
Camerini, U., 277
Camilla, A., 63
Canter, H. Y., 386
Careri, G., 424, 443
Carlson, B. C., 207, 319
Carothers, E. L., 382
Carr, D. R., 421
Carter, C. E., 366
Carter, R. E., 380

Carter, R. S., 340
Carttar, M. S., 362, 366, 378, 379, 391
Cartwright, W. F., 250, 254, 255
Carver, J. H., 17
Carver, T. R., 38
Casarett, G W., 382
Cassen, B., 383
Cassidy, J., 58
Cassidy, J. M., 54, 58, 63
Castagnoli, C., 277
Castanera, T. J., 384
Caswell, R. S., 53, 58, 61, 407
Catcheside, D. G., 351
Cavallo, L., 53, 58, 59, 60
Cavanaugh, P. E., 54, 58, 62, 63
Cebul, F. A., 383
Cerenkov, P. A., 141
Chackett, K. F., 410, 422, 442
Chadwick, J., 191
Chakreborty, K. P., 381
Chambers, F. W., 377
Chanutin, A., 363, 364, 368, 370
Chapman, W. H., 368
Charlesby, A., 390
Charpak, G., 404
Chase, H. B., 362
Chastain, S. M., 388
Chastel, R., 13
Cheever, F. S., 386
Cheng, A. L. S., 368, 384
Chetham-Strode, A., 159
Chevallier, A., 367, 368
Chew, G., 244, 261, 262, 263, 264, 266
Childs, R., 391
Childs, W. J., 58
Chilton, A. B., 331
Chin, P. H., 386
Choppin, G. R., 159, 169
Christaldi, P. S., 96
Christenberry, K. W., 380
Christensen, N., 392
Christensen, W. R., 390
Christian, E. J. B., 368, 389
Chu, T. L., 46
Church, E. L., 174, 175
Cigna, A., 412
Clark, D. D., 342
Clark, D. L., 250
Clark, F. L., 402, 403
Clark, J. W., 378, 379, 380
Clark, L. B., Sr., 52
Clark, R. K., 53, 54
Clarke, G., 361
Cleland, M. R., 108, 145, 152
Clement, J., 129
Coates, 286, 287
Cochran, K. W., 357, 358, 359, 362, 363, 364, 365, 366
Cogan, D. G., 380
Cohen, B. L., 77
Cohen, S. G., 406
Cohen, V. W., 34, 36
Cohn, O. H., 285, 286, 287, 293
Cohn, R. A., 61
Cohn, S. H., 364, 383
Cole, L. J., 387, 388
Colgate, S. A., 55
Collier, D., 431
Collins, C. B., 70, 75, 416, 417, 420, 421, 426, 439, 440, 441, 445
Collins, E. R., 166
Collins, G. B., 142
Colmery, B. H., Jr., 382
Comar, C. L., 378
Comsa, J., 387
Conard, R. A., 369
Condon, E. U., 157, 179
Congdon, C., 377
Coniglio, G., 367
Coniglio, J. C., 392
Conway, B. E., 388, 390
Cook, C. J., 347
Cook, G. B., 73
Cooke, H. B. S., 415
Cool, R., 227, 228, 229, 232
Cooley, R. S., 415
Coon, J. M., 377
Cooper, B. M., 382
Cooper, J. A. D., 391
Cooper, J. N., 331
Cooper, M., 409
Cooper, W. A., 294, 302, 310
Copp, D. H., 383
Corba, J. P. Y., 61
Corben, H. C., 191-218; 317
Cork, J. M., 58
Cormack, A. M., 434
Cornatzer, W. E., 368
Corson, D. R., 316
Cortini, G., 277
Coryell, C. D., 69, 72, 73, 74, 75
Costello, M. J., 362, 366
Cotter, G. J., 365, 388
Cotton, W. k., 383
Coulter, E. P., 362, 366
Coulter, M. P., 386
Courant, E. D., 5, 28
Courant, H., 288, 289, 304
Court Brown, W. M., 379, 384, 390
Cowan, C. E., 207
Cowan, C. L., Jr., 383
Cowan, F. P., 3
Cowan, W. E., 288
Cox, J. T., 34
Cox, R. S., Jr., 378, 379
Craig, D. H., 54
Craig, H., 431
Crane, H. R., 429, 430, 434
Cranna, N. G., 44
Crathorn, A. R., 429, 430
Craven, J. H., 53
Crawford, F. S., 249, 250
Critchfield, C. L., 18, 179
Crussard, J., 227
Culpepper, N., 58
Cumming, G. L., 420, 439
Cummings, O. K., 370
Cunningham, B. B., 402
Curatolo, M., 407
Curie, M., 406
Curran, S. C., 111, 343, 404, 405, 406, 415
Curtis, M. L., 406
Curtiss, L. F., 55, 56, 57, 407

D

Daggs, V. M., 383
Dahanayake, C., 306, 310
Dale, W. M., 354
Dalgarno, A., 344
Dalitz, R. H., 282, 283
Dalton, J. C., 409, 410, 422, 423, 435
Damon, P. E., 411, 412, 420, 421, 440
Dancoff, S , 263
Dandl, R. A., 58
Daniels, F., 426
Daniels, M., 390
Darby, W. J., 367, 377, 388, 392
Das Gupta, A. K., 425, 426
Das Gupta, N. N., 381
Daudel, R., 405
Dauer, M., 377
Dauvillier, A., 439
Davenport, V., 392
David, G. L., 89
Davidson, C. F., 407, 408
Davis, C. W., 426
Davis, G. L., 408, 410, 417, 425, 426, 435
Davis, R. C., 58
Davison, J. P., 368
Davisson, C M., 55
Dawson, K. B., 411
Day, A. E., 75
Day, P. L., 357
Dayhoff, E. S., 46
Dayton, B., 289, 304
de Azcona, J. M. L., see López de Azcona, J. M.,
DeBenedetti, S., 191-218; 104, 174, 191, 201, 202, 206, 207, 208, 209
Debierne, A., 406
Debley, V., 388
Dechamps, G., 386
Decker, A. B., 368
Deevey, E. S., Jr., 412, 420, 429, 430, 431, 432
DeGeer, E. H., 431
Dehmelt, H. G., 34, 36, 45
de Hoffmann, F., see Hoffmann, F. de
Deighton, M. O., 96, 97, 98,

101
de Jager, C., see Jager C. de
de Laboulaye,H., see Laboulaye, H. de
Delaney, C. F. G., 408, 422
de la Ripelle, M.F., see Fabre de la Ripelle, M.
Del Buono, G., 368
Dellaporta, N., 306
del Rio, C.S., see Rio,C.S. del
Demay, A., 407, 417
Demos, P. T., 77
Denson, J. R., 360, 391, 392
De Pasquali, G., 134
der Mateosian, E., see Mateosian, E. der
Deroin, J., 359, 365
DeShalit, A., 54, 172
DeStaebler, H. C., Jr., 289, 304, 308
Detrick, L. E., 388
Deuel, H. J., Jr., 368, 384
Deutsch, M., 54, 93, 192, 199, 202, 206, 207, 214, 216
Deutschmann, M., 287
Devaney, J. J., 179
de Vries, H., see Vries, H. de
Diamond, H., 159
Dicke, R. H., 143, 152
Dickinson, W. C., 77
Dickman, S., 354, 355, 356, 363, 364
Dieckman, C., 379
Diethorn, W. S., 429, 430
Dietrich, C. F., 54
Dilworth, C., 271-314; 220, 305
Dinning, J. S., 357
Dirac, P. A. M., 195
Dismuke, N., 70
Dixon, D., 404, 405, 406
Dixon, F. J., 386
Doak, J. B., 425
Dobson, R. L., 351
Doernbach, C., 366
Donaldson, D. M., 386
Douglas, D. L., 412, 429, 430
Doull, J., 357, 358, 359, 362, 363, 364, 366, 370, 377, 391
Dowdy, A. H., 390
Doyle, W. L., 365
Dreisler, K. K., 380
Drisko, R. M., 196, 197
Drost-Hansen, W., 72
DuBois, D. P., 351-76; 357, 358, 359, 362, 363, 364, 365, 366, 367, 377, 391, 392
Dudley, A., 69
Duerden, T., 146
Dulit, E., 214
DuLong, W. A., 59
DuMond, J. W. M., 55, 58, 62, 192, 207
Dunbar, D. N. F., 331
Dunjic, A., 387
Dunlavey, D. C., 159, 170, 405, 414
Dunworth, J. V., 52
Duplan, J. F., 384
Dupouy, G., 166
Durbin, R., 222, 250
Dyson, F. J., 265, 266

E

Eades, R. G., 45
Easton, W. C., 406
Eby, F. S., 126, 127, 134
Eckelmann, W. R., 412, 416, 417, 418, 429, 432, 439
Edwards, R. R., 69, 73, 74, 75, 411, 412, 414
Efner, J. A., 367, 377, 392
Ehrenberg, H. F., 416, 439
Eichel, H. J., 368, 370
Eisberg, R. M., 342
Eisenbud, M., 412
Eisinger, J. T., 36
Eklund, E., 404
Eklund, S., 404
Eldjarn, L., 386
Eldred, B., 377
Eldred, E., 377
Ellinger, F., 367
Ellinwood, L. E., 380
Elliot, J. C., 121, 122, 123, 124
Elliott, L. G., 175
Elliott, W. B., 358
Ellis, M. E., 387, 388
Elsasser, W., 168
Elsken, R. H., 46
Elson, L. A., 390
Ely, J. O., 359, 365, 367
Emmons, R. C., 407
Endt, P. M., 403, 434
Enerson, D. M., 383
Engelkemeir, A. G., 56, 64
Engelkemeir, D. W., 71, 72
Engelstad, O., 368
Entenman, C., 368, 391
Epstein, H. T., 390
Erichsen, L. von, 421
Ericson, D. B., 428
Ermolin, G. M., 402, 423
Esplin, D. W., 386
Evans, R. D., 51, 55, 57, 60, 407
Evans, T. C., 361
Eve, A. S., 406
Everett, J. W., 369
Exner, C., 407

F

Fabre, de la Ripelle, M., 405
Fabri, E., 282, 283
Fafarman, A., 412
Fairbairn, H. W., 427, 435
Fairhall, A. W., 77
Fairstein, E., 62
Faltings, V., 413, 414, 429, 430
Fan, C.-Y., 58, 59, 62
Fano, L., 52, 61, 62
Fano, U., 55
Faraggi, H., 405
Farquhar, R. M., 416, 417 420, 421, 423, 426, 439, 440, 441, 445
Faul, H., 401, 407, 412, 415
Fechter, H. R., 20
Feely, H. W., 412, 429
Feenberg, E., 25, 224
Feiner, F., 222, 227, 228, 232
Feinstein, R. N., 368, 370, 388
Feister, I., 55
Feld, B. T., 29, 174, 235
Feldman, C., 415
Ferentz, M., 23, 24
Ferguson, J. H., 387
Fergusson, G. J., 429
Ferkel, R. L., 364
Fermi, E., 210, 222, 228, 232, 233, 241, 242, 266, 332, 347, 434
Ferradini, C., 60
Ferrell, B. L., 77
Ferrell, R. A., 211, 212
Festa, C., 441
Feynman, R. P., 261, 264
Fields, P. R., 159
Fields, T. H., 250
Fillmore, P. G., 380
Finerty, J. C., 388
Finkel, M. P., 381
Finnegan, C., 386
Fireman, E. L., 406, 414, 433
Fischer, J., 99, 105, 106
Fischer, M. A., 362, 366
Fischer, P., 386
Fishler, M. C., 383, 387
Fishman, M., 386
Fiskell, J. G. A., 59
Fitch, V. L., 20
Fleischer, M., 401, 407, 429
Fleming, E. H., Jr., 402
Fleming, J. R., 338
Fleming, W. H., 76
Flint, J. S., 388
Flint, R. F., 430, 431, 432
Flinta, J., 404
Flood, V., 361
Florencio, W., 407, 415
Florsheim, W. H., 366
Flowers, B. H., 172
Flynn, K. F., 73, 75
Foldvari, A., 407
Foldy, L. L., 15, 265
Fonda, G. R., 131
Fong, P., 78
Foote, R. S., 14
Ford, G. P., 69, 70, 74, 76
Ford, K. W , 172, 185
Forro, M., 52, 54
Forssberg, A., 355, 361

Forstat, H., 342
Förster, T., 124
Fournier, G., 168
Fowler, P. H., 272, 277, 310
Fowler, W. B., 232, 287, 308
Fox, B. W., 383
Fox, J. G., 250
Fox, M., 390
Franchi, M., 388
Francis, J. E., 58
Franck, J., 132
Francois, P. E., 306, 310
Frank, I., 141
Franke, H. W., 431
Franseen, C. C., 364
Frauenfelder, H., 183
Frazer, J. S., 174
Fred, M., 34, 186
Freedman, A. J., 429, 430
Freedman, M. S., 69, 72
Freeman, J. R., 416
Fremlin, J. H., 406
Frenkel, J., 124, 132
Fretter, W. B., 277
Frey, H. B., 126
Fricke, H., 354
Friedell, H. L., 382, 387, 390
Friedlander, M. W., 308
Friedman, A. M., 159
Friedman, L., 57
Friesen, S. von, 306
Fritze, K., 423
Frohlich, H., 347
Fromm, E., 432
Frondel, C., 409
Frost, R. H., 343
Fry, D. W., 9
Fry, W. F., 274
Fryer, G., 405
Fujii, S., 264
Fujimoto, Y., 306, 310
Fulbright, H. W., 406
Fuller, E. G., 13, 28
Fulton, J. D., 386
Fulton, T., 212
Funi, F. G., 193, 197, 213
Funt, B. L., 129
Furberg, S. E., 64
Furchner, J., 382
Furst, M., 114, 117, 123, 127, 128
Furth, F. W., 386
Furth, J., 351, 377, 380, 385

G

Gabe, M., 364
Gabrielli, E. R., 386
Galbraith, W., 76, 151
Gammel, J., 263
Gamow, G., 157, 179, 439
Garlick, G. F. J., 111, 121, 131
Garrigue, H., 411, 412
Garrison, W. M., 381
Garstang, R. H., 344
Garwin, R. L., 101, 104, 207, 209
Gasvoda, B., 361
Gatti, E., 54
Gauthé, B., 405
Gayther, D. B., 287
Geiger, H., 406
Geiss, J., 420, 439, 440, 441
Gell-Mann, M., 219-70; 18, 23, 24, 266, 267
Genaud, P. E., 386
Gentner, W., 422, 423
Gérardin, L., 96
Gergel, M. V., 414
Gerhart, J. B., 207
Gerling, E. K., 402, 423, 424
Germanogli, E., 54
Geslin, M., 407
Getting, I. A., 144, 152
Ghiorso, A., 159, 167, 168, 169, 170, 179, 180, 186, 187, 402, 405, 406
Ghormley, J. A., 63, 64, 406
Giletti, B. J., 416
Gillespie, J., 415
Gillette, R. H., 137
Gilmore, J. S., 73
Ginnings, D. C., 406
Ginzton, E. L., 94
Gjessing, E. C., 368
Glass, J. J., 415, 417
Glass, R. A., 159, 167, 169, 170
Gleiser, C. A., 377
Glendenin, L. E., 69-80; 69, 71, 73, 74, 75, 76, 89
Glenn, W. E., 168
Glick, C., 391
Glicksman, M., 233
Glueckauf, E., 168
Godbole, R. D., 29
Godwin, H., 431
Goebel, K., 422, 423
Goeckerman, R. A., 74
Goertzel, G. H., 54
Gofman, J. W., 368
Goldberg, E. D., 420
Goldberger, M., 172, 175, 266, 267
Goldblatt, M., 406
Goldemberg, J., 13, 22, 23, 26, 28
Golden, J., 409, 410, 422, 435
Goldhaber, M., 23
Goldschmidt-Clermont, Y., 222, 235, 240, 272
Goldsmith, G. J., 52, 54
Goldstein, A., 69
Goldstein, M. J., 368
Goldwasser, E., 235, 236 237, 238, 239, 240, 248, 262, 335
Gomori, G., 364
Gong, J. K., 364, 383
Gonshery, L., 386
Goodman, C., 407
Goodman, R. D., 359, 392
Goodner, C. J., 392
Gordon, L. E., 386
Gordy, W., 34
Gorfinkle, L. G., 424, 425
Gorman, J., 222, 227, 228, 232
Gosh, S. K., 340
Gott, G. B., 408, 409, 411, 412
Gottfried, D., 419
Gottstein, K., 272, 273
Gould, B. S., 364
Grabherr, W., 409
Graham, R. L., 54, 58, 70, 75, 101, 102, 104, 105, 175, 208
Grahn, D., 377
Grande, P., 429, 430
Granger, H. C., 408
Gray, E. J., 360, 391, 392
Gray, E. P., 16
Gray, G. W., 445
Gray, I., 386
Gray, J. L., 360, 391, 392
Gray, L. H., 53, 63, 381, 385
Gray, P. R., 414
Gray, T. S., 126
Greenberg, J. S., 99
Greenman, V., 386
Greer, B. A., 75
Gregory, B., 293, 294, 295
Gregory, B. P., 286
Grenan, M. M., 360, 386
Griffin, J. B., 429
Griffiths, M., 64
Griffiths, G. M., 207
Grim, W. M., 126
Griswold, T. W., 38
Gros, C. M., 368, 387, 391
Gross, M. S., 412, 420, 429, 431
Grosse, A. V., 413, 414, 430
Grosse, H., 430
Grover, J. R., 174
Grummitt, W. E., 69
Gugelot, P. C., 136
Guillot, M., 174, 177
Guimaraes, D., 415
Gunst, S. B., 191
Guntz, A. A., 408
Gupta, A. K. D., see Das Gupta, A. K.
Gupta, N. N. D., see Das Gupta, N. N.
Gupta, R. L. S., see Sen Gupta, R. L.
Gurney, R. W., 157, 179
Gustafson, G. E., 368, 383, 386
Gustafson, P. F., 383
Gutenberg, B., 434, 435, 436, 437, 438
Guth, E., 17

Gutowsky, H. S., 34, 35, 45, 46

H

Haar, D. ter, 445
Hackett, P. L., 383
Haeberli, W., 343
Haenny, C., 411
Hadley, J., 222, 248
Hahn, B., 136
Hahn, O., 69, 406
Hahn, P. F., 51, 60, 382
Hahne, H. J., 386
Halbach, K., 34
Halban, H., 63
Hale, W. M., 386
Haley, T. J., 378, 388
Halicki, B., 430
Hall, H., 332, 333
Hall, J. J., 355
Halliday, D., 206, 214, 215
Halloway, A. F., 58, 59, 62
Halpern, I., 77, 174
Halpern, J., 13, 17, 18, 22, 23, 26
Halpern, O., 332, 333
Hamill, W. H., 56, 69
Hamilton, J. G., 381, 383
Hammermesh, B., 18
Hammond, C. W., 386
Handloser, J. S., 3
Hanna, G. C., 76
Hanna, R. C., 194
Hannan, R. S., 388
Hansen, R. A., 388
Hanson, A. O., 17, 319, 335
Harbottle, G., 61
Hardeman, G. E. G., 45
Hardwick, W. H., 72
Hardy, W. A., 34
Harel, J., 382
Harley, J. H., 411, 412
Harrick, N. J., 34, 35
Harrington, H., 367
Harris, D. R., 294, 304
Harris, G. G., 308
Harris, J. C., 331
Harris, P. S., 380
Harrison, F. B., 112, 114, 117, 123, 128, 129, 383
Harrison, H. C., 419
Harriss, E. B., 390
Harshaw, J. A., 133, 134
Hart, E. J., 354
Hart, H., 383
Harteck, P., 413, 414
Harvey, B. G., 76, 159, 169
Hase, H., 379
Hasegawa, A., 361
Haskins, J. R., 58
Hasted, J. B., 344
Hastings, J. M., 414, 446
Hataye, I., 412
Havens, W. W., Jr., 254, 255
Hawkings, R. C., 53, 56, 57, 58, 72
Haxel, O., 404, 406, 412
Hay, J. O., 133
Hayase, K., 408
Hayden, R., 71, 73, 75, 89, 90, 403, 404, 406, 414, 419, 423
Hayes, F. N., 129, 383, 412, 429, 430
Hayes, T. L., 368
Haynes, S. K., 62
Hayward, E., 13, 28
Hazen, W. E., 343
Hecht, F., 408
Hecht, H., 385
Hedgran, A., 62, 63, 192, 207
Hée, A., 410, 411
Heglin, J., 378, 388
Heintze, J., 406
Heinz, O., 274
Heisler, C., 390
Heitler, W., 191, 196, 224
Henderson, J. E., 142
Hendley, D. D , 370
Henkel, D. T., 388
Henkel, R. L., 77
Henley, E. M., 228, 259, 260
Herbert, F. J., 391, 392
Hereford, F. L., 194
Herman, R. C., 420, 440, 441, 445
Herve, A., 386, 387, 388
Herzog, L. F., 425, 442
Hess, D. C., 71, 75, 90, 403, 408, 410, 419, 424
Hess, D. N., 56
Heuse, O., 378, 389
Heusghem, J., 368
Hevesy, G., 361
Hewett, D. F., 415, 417
Hewitt, J. E., 368
Hewlett, W. R., 94
Hey, M. H., 410, 422
Heyningen, R. van, 381
Hibbard, L. U., 3
Hiby, J., 423
Hickman, J., 362, 365, 366
Hieke-Merlin, O., 407, 408
Higgins, G. H., 159, 169
Highman, B., 367, 377
Hildebrand, R. H., 145, 243, 251, 254, 255
Hilfinger, M. F., Jr., 387
Hill, D. H., 28
Hill, D. L., 78, 185
Hill, J. W., 409, 411
Hill, R. D., 62
Hincks, E. P., 405
Hine, M. G. N., 6
Hinman, G., 58, 63
Hirsch, G. M., 381
Hirschberg, D., 305
Hirschberg, L., 305
Hochman, A., 385
Hodson, A. L., 294, 304
Hoffman, B. G., 316, 329
Hoffman, D., 379
Hoffmann, F. de, 233, 266
Hofstadter, R., 20, 133, 134, 136, 150, 339, 342
Holaday, D. A., 411
Hollaender, A., 361
Holland, H. D., 411, 426, 428
Hollander, J. M., 159
Holm, C. H., 46
Holmes, A., 402, 414, 416, 417, 420, 426, 439, 440, 445
Holmes, B. E., 367
Holyk, W. K., 410, 425, 435, 436
Hopkins, J. I., 125
Horie, H., 172
Hornbostel, J., 194
Horne, E. T., 409
Horsley, R., 75
Horton, W. H., 96
Hough, J. L., 428
Houtermans, F. G., 53, 60, 404, 405, 406, 418, 420, 428, 434, 439, 440, 441, 446
Howell, W. D., 52, 58, 68, 99
Howland, B., 102
Howland, J. J., 168
Howland, J. W., 386
Hoyt, H. C., 62, 192
Hubbard, E. L., 328
Hubenet, H., 406
Huber, O., 54
Huber, P., 62, 104, 108, 343
Hudson, A., 339, 342
Hudson, G. W., 367, 377, 388, 392
Hugget, R. W., 285, 286, 287
Hughes, D. E., 387
Hughes, J. H., 408
Hughes, V., 209, 214
Huizenga, J. R., 70, 159, 169
Hulet, E. K., 159
Humbel, F., 54
Hummel, J. P., 159
Hunter, R. F., 56, 57
Hurley, P. M., 421, 426, 427, 428, 435
Hursh, F. B., 361
Hursh, J. B., 383
Hurst, G. S., 343
Huseby, R. A., 391
Huster, E., 404
Hutchinson, G. E., 412, 431
Hutton, C. O., 409
Huybrechts, M., 332
Hyams, B. D., 146
Hyde, E. K., 159, 168, 406
Hyde, H. I., 411
Hylleraas, E., 192
Hyndman, D., 46

I

Ibamoto, H., 46
Igo, G. J., 342
Iloff, E., 254, 255
Indovina Addario, M. M., 470
Ingerson, E., 403, 407, 408

Ingham, W. N., 407
Inghram, M. G., 81-92; 56, 69, 71, 73, 75, 85, 89, 90, 403, 406, 407, 408, 410, 414, 417, 419, 424, 435, 441
Ingle, D. J., 385
Ingols, R. S., 382
Iredale, P., 306, 310
Isaac, N., 406, 418, 427
Ishimori, I., 411, 412
Ishimori, T., 412
Israel, H., 411
Itoh, J., 46
Ivanenko, D. D., 405
Iverson, J., 431, 432
Ivy, A. C., 383
Iwadare, J., 264
Iwasaki, I., 411, 412
Iwatsuru, R., 363

J

Jackson, E., 360
Jackson, H. G., 159
Jackson, J. A., 117, 123
Jackson, J. D., 344
Jacobi, R. B., 410, 422
Jacobs, T., 415
Jacoe, P. W., 411
Jacques, R., 405
Jacquez, J. A., 377
Jaffe, G., 408
Jager, C. de, 406
Jain, P. L., 46
Jankus, V. Z., 318
Jarovoy, M., 410
Jarrett, H. S., 46
Jasberg, J. H., 94, 96
Jastrow, R., 264
Jauch, J. M., 54, 63
Jean, M., 405
Jeffries, C. D., 34
Jeffreys, H., 434, 435, 436, 438, 439
Jelley, J. V., 144, 151, 152, 156
Jenks, G. H., 54, 63, 64, 406
Jennings, F. L., 368
Jensen, E. N., 59
Jensen, F., 423
Jensen, H., 360, 361, 391
Jensen, J. H. D., 23
Jentschke, W., 183
Jentschke, W. K., 126, 127, 134
Jesse, W. P., 342, 343
Johansson, S., 55, 63
Johns, M. W., 175
Johnson, F., 430, 431
Johnson, F. B., 381
Johnson, V., 166
Johnston, W. M., 413
Joliot, F., 192
Jolliffe, A. W., 415
Jones, D. C., 384
Jones, E., Jr., 347
Jones, E. A. W., 403, 423
Jones, G. A., 18
Jones, G. M. D. B., 340
Jones, H. B., 367, 368, 387
Jones, J. W., 406
Jones, L. W., 13, 26
Jones, W. H., 77
Jones, W. M., 56, 63, 406
Jonker, J. L. H., 96
Jordan, D. L., 378, 379
Jordan, P., 405
Jordan, W. H., 58, 111
Jorgensen, T., Jr., 347
Jugenburg, A., 360
Jung, K., 438

K

Kahn, D., 331
Kaiser, E. P., 408
Kalkstein, M. I., 404, 406
Kallmann, H., 93, 114, 117, 118, 123, 124, 125, 127, 128, 136
Kallmann, H. E., 96
Kalnitsky, G., 358
Kamada, M., 412
Kanada, T., 46
Kane, J. A., 250
Kantz, A., 150
Kaplan, H. S., 387
Kaplan, J., 179, 180
Kaplan, W. D., 386
Karlik, B., 168
Karnofsky, D. A., 377
Karplus, R., 211, 212
Karraker, D. G., 168
Karzmark, C. J., 285, 286, 287, 293
Kastner, J., 58
Katcoff, S., 73, 74, 414, 446
Katz, L., 13, 22, 23, 26, 28
Katzman, J., 412
Kaufman, S., 413, 414, 432, 433
Kaufmann, B. N., 391
Kawin, B., 383
Kaykin, P. N., 65
Kearns, M. M., 410, 435, 436
Keck, J., 17, 235, 238, 239, 244
Keene, J. P., 344, 345, 346
Keevil, N. B., 407, 408, 419
Keinberger, C. A., 402
Keith, G. K., 357
Keller, R. N., 71
Keller, W. D., 408
Kelley, G. G., 58
Kelly, L. C., 96
Kelly, L. S., 367, 387, 391
Kemmer, N., 224, 260
Kemmerich, M., 404
Kent, D. C., 27
Kepp, R. K., 379
Kerman, H. D., 382
Kerr, P. F., 417
Kersten, H., 355
Ketelle, B. H., 58, 62
Kikuchi, C., 34, 36
Kim, Y. B., 285, 286, 287, 293
Kimball, A. W., Jr., 378
Kimball, C., 18
Kimball, R. F., 351
Kimeldorf, D. J., 384
Kimura, K., 408, 411, 415
Kip, A. F., 38, 46
Kirby, H. W., 406
Kiriyama, R., 46
Kirkaldy, J. S., 99
Kirschner, L. B., 360
Kirshenbaum, A. D., 413, 414, 430
Kisieleski, W. E., 364, 381
Kistler, K., 383
Kittel, C., 38, 46
Kjellberg, G., 429
Kleiber, G. S., 23
Klein, A., 211, 212
Klein, D. J., 62, 192
Kleinschmidt, R. S., 412
Klemperer, O., 192
Klinkenberg, F. A., 405
Kluyver, J. C., 403, 434
Knight, W. D., 39
Kniseley, R. M., 382
Koch, H. W., 14
Koch, J., 72
Koch, R., 360
Koczy, F. F., 429, 441
Koechlin, Y., 129
Koenigh, V. L., 390
Kofoed-Hansen, O., 72
Kohman, T. P., 401-62; 60 158, 168, 170, 401, 404, 405, 406, 414, 418, 426, 429, 430, 433, 439, 446
Kohn, H. I., 367
Kohn, W., 344
Kojima, S., 45, 46
Koletsky, S., 368, 386
Koltzman, R. B., 59
Konneker, W. R., 207
Kordik, P., 369, 370
Korson, R., 361, 385
Kory, R. C., 382
Koski, W. S., 123, 129
Koudijs, B., 328
Kovarik, A. F., 403
Kowitz, G., 385
Kramer, B., 114
Kramers, H. A., 344
Kraushaar, J. J., 175
Kraybill, H. L., 412, 431
Krebs, A., 388, 391
Kremers, H. C., 133, 134
Kretchmar, A. L., 385
Kristensen, P., 72
Kristiansson, K., 306
Kröger, F., 131, 137
Kroll, N., 265
Kröll, V. S., 427
Kruger, P. G., 126, 127

Kryder, G. D., 368, 384
Kulp, J. L., 411, 412, 413, 414, 416, 417, 418, 421, 426, 428, 429, 430, 432, 439, 442
Kunkel, H. O., 357, 370
Kupperian, J. E., Jr., 340, 342
Kurbatov, J. D., 58
Kuroda, P. K., 408, 411, 412, 414
Kusaka, R., 46
Kwiatkowski, H., 369

L

Laboulaye, H. de, 73
Lacassagne, A., 386
Lagarrigue, A., 293, 294, 295
Lal, D., 306
Lamarche, G., 44
Lamb, W. E., 46
Lambert, G., 387
Lamerton, L. F., 390
Lancker, J. van, 387, 388
Landahl, H. D., 361
Landau, L., 321, 341
Landau, L. D., 193, 211, 212
Landau, P., 385
Landy, J. J., 383
Lang, A. H., 416, 421
Lang, G., 63
Lang, L. G., 58
Langendorff, H., 384
Langer, L. M., 63
Langham, W. H., 380
Larsen, E., 90
Larsen, E. S., 408
Larsen, E. S., Jr., 419
Larson, Q. V., 73
Lartigue, O., 359, 360
Laszlo, D., 383
Laughlin, J. S., 379
Lauritsen, T., 18
Lavik, E. S., 367
Lavik, P. S., 390
Lawley, P. D., 124
Lawrence, J. H., 351, 379
Lawrence, J. S., 390
Lawson, J. D., 6
Lawson, J. L., 23
Lawson, J. S., Jr., 183
Lea, D. E., 353, 354
Lea, R., 232
Leamer, R., 63
Lebedev, V., 405
LeBihan, H., 386
Leblond, C. P., 367
Lecoin, M., 405
Lecolazet, R., 411
LeComte, J., 386
Le Couteur, K. J., 422
Leighton, R. B., 287, 288, 294
Leinfelder, P. J., 381
Leipuner, L., 202, 210
Leisegang, S., 341
Leite Lopes, J., 261, 264
Leland, W. T., 402, 417
LeMay, M., 362
Leonard, S., 222
Leonards, J. R., 390
Lepape, A., 407
Leprince-Ringuet, L., 277, 293, 294, 295
Lerner, S. R., 368
Leschi, J., 385
Leverenz, H. W., 131
Levi, H., 429, 430, 431, 432
Levine, C. A., 406, 414
Levinger, J. S., 13-32; 25, 26, 27, 29
Levinthal, C., 21
Levy, B., 360, 377, 385, 392
Levy, R. A., 46
Lew, H., 34, 35, 36
Lewis, A. E , 359, 388
Lewis, G. M., 404
Lewis, W. B., 166
Libby, W. F., 56, 69, 401, 405, 406, 412, 413, 414, 429, 430, 431, 432, 433
Lidofsky, L., 61
Liebecq, C., 358
Liebson, S. H., 121, 122, 123, 124
Lind, D. A., 55, 58, 62, 63, 207
Lind, S. C., 406
Lindeman, H., 411
Lindenbaum, S. J., 147, 227, 228, 232
Lindhard, J., 327, 330
Linn, J. G., Jr., 380
Lipmann, F., 386
Littauer, R. M., 17
Little, W. A., 115, 120, 122
Littman, A., 383
Livingston, M. S., 5, 10
Livingston, R., 34, 45
Loar, H., 222, 250
Lockett, E. E., 58, 59, 60, 61, 62, 63, 406
Lockhart, L. B., Jr., 411
Loefer, J. B., 388
Lofgren, E. J., 4
Logan, M. A., 355
London, F., 124
Long, J. V. P., 430
Longmire, C., 16
Lopes, J. L., see Leite Lopes, J.
López de Azcona, J. M., 415
Lord, J., 232
Lord, J. J., 338
Lorenz, E., 377
Lorenz, W., 384
Lotz, V., 382
Lourau, M., 359, 360, 391
Lovberg, R. H., 134, 135
Love, J. D., 408
Love, S. K., 411
Low-Beer, A., 367
Lowell, W. R., 408
Ludewig, S., 363, 364, 370
Lundby, A., 122, 142
Lusky, L. M., 383
Lutwak-Mann, C., 367
Lynen, F., 386
Lyon, M. F., 386
Lyon, W. S., 64

M

Mabumoto, S., 46
McCall, D. W., 34, 45
McCarthy, J. A., 406
McClure, R. E., 35
McCormick, G. H., 77
McCormick, W. G., 388
McCrady, E., 420, 440, 441
McCulloch, E., 388
McDaniel, B. D., 29
McDaniel, E. W., 429
McDonald, M. R., 388
McGarvey, B. R., 45
McGrath, J., 391
Macgregor, A. M., 424, 425
MacGregor, M. H., 404
McIntyre, J. A., 20, 134
MacIntyre, W. J., 138
McKee, R. W., 360
McKenzie, C. D., 166
MacKenzie, K. R., 328
Macklin, P., 61
McLaughlin, D. B., 437
McLean, F. C., 378
McLean, R., 364
McLellan, W. M., 382
McLernon, F., 108, 145, 152
MacLusky, G. J. R., 96, 97, 98, 101
McNair, A., 405, 406
McNally, J. R., Jr., 185
Macnamara, J., 70, 75, 76
Madansky, E., 107
Madansky, L., 174, 227, 228, 229, 232
Madsen, C. B., 331
Maeder, D., 63
Magnusson, L. B., 159, 169
Mahler, R. F., 379, 390
Mahmoud, H. M., 259, 260
Maisin, H., 387
Maisin, J., 387
Major, J. K., 64
Maletskos, C. J., 58, 63
Malling, L., 35
Mandart, M., 387
Mandel, P., 368, 391
Manduchi, C., 155
Manfredini, A., 277
Manger, G. E., 412
Mann, K. C., 65
Mann, W. B., 52, 53, 56, 57, 58
Manning, W. M., 70
Manov, G. G., 51-68: 56, 57, 407
Manring, E., 45
Marble, J. P., 409, 415

Marcus, S., 386
Marder, S., 209, 214
Marinelli, L. D., 53, 383
Marshak, A. J., 367
Marshak, R. E., 251
Marshall, J., 141-56; 99, 105, 106, 145, 152, 153, 252, 256
Marshall, J. F., 17
Marshall, L., 145, 252, 256
Marston, R. Q., 386
Martin, A. V., 415
Martin, D. G. E., 175
Martin, G. R., 406, 409, 410, 413, 422, 423, 435
Martin, P. C., 212
Martin, R., 222, 228, 232, 233
Martinelli, E. A., 155, 256
Mason, G. W., 414
Massey, H.J., 317
Massey, H.S.W., 344
Masuda, Y., 46
Mateosian, E. der, 61
Mather, J. W., 155, 256
Mather, R., 328, 331
Matsuda, F., 411
Matthews, C.M.E., 408
Maurer, P. H., 386
Maxwell, A. E., 437
Maxwell, E., 366
Mayer-Leibnitz, H., 207
Mayne, K. I., 410, 422, 423, 435
Mazur, M., 362, 364
Mazzanti, L., 388
Mead, J.F., 368
Mech, J. F., 414
Mech, J.R., 159
Mefferd, R. B., Jr., 388
Mehnert, K. R., 423
Meijer, H. R., 108
Meinke, W. W., 412
Meinschein, W. G., 429, 430
Melander, L., 63
Menard, H. W., 428
Mendelsohn, M. L., 389
Meneely, G. R., 382
Menon, M. G. K., 272, 273, 301, 303, 308
Meot, R., 386
Mercer, E. R., 409, 410, 422, 435
Meredith, W. J., 354
Merrill, P. W., 406
Merritt, W. F., 53, 58, 72
Meschan, I., 357
Messel, H., 332
Messiah, A. M. L., 251
Metcalf, R. P., 73
Metnieks, A., 410, 411
Metropolis, N., 233
Metzger, F. R., 63
Meyer, K. P., 104, 108
Meyer, L.H., 35, 46
Meyers, R. D., 122
Meyers, S., 406
Meyers, W. G., 382
Meyer-Schutzmeister, L., 53
Michel, L., 193
Mihelich, J. W., 62
Mikiewicz, E., 124
Mikuta, E. T., 370, 384, 387
Milholić, S., 419, 424
Milkey, R. G., 416, 417, 439
Millar, C. H., 405
Millar, D. D., 294, 302, 310
Miller, C. P., 386
Miller, D., 228, 232
Miller, R. W., 383, 386
Miller, W. W., 56, 57
Millet, W. E., 209
Mills, F. E., 335
Milne, W. L., 387
Milton, J. C. D., 174
Minami, E., 411, 412
Minkkinen, C. O., 73
Mins, W., 63
Minton, G. E., 208
Minton, G. H., 174
Mitchell, A. C. G., 52, 120
Mitchell, J. R., 367
Mitchell, R. B., 386
Moffatt, R. J. D., 63
Mohney, J. B., 361
Mohorovičić, S., 192
Mole, R. H., 360, 361, 369, 370, 380, 385, 386, 389, 390, 391
Møller, C., 319
Momyer, F. F., 168
Monroe, R. A., 385
Montalbetti, R., 13, 22, 23, 26
Montgomery, C. G., 192
Moody, N.F., 96, 97, 98, 99, 101
Moon, M. L., 54
Moon, R. J., 137, 138
Moore, C. E., 406
Moore, R. C., 415
Moreau, J., 61
Moret, R., 385
Morgan, J. E., 377
Morrison, P., 21, 22, 403
Morton, G. A., 108
Morton, M. E., 366
Mościcki, W., 429, 430
Moses, C., 380
Moses, H. A., 46
Moss, N., 76
Mott, N. F., 344
Mottelson, B. R., 28, 172, 175, 178, 183, 185
Mousuf, A. K., 403, 423
Muench, O. B., 415
Muirhead, H., 277
Mulholland, G. I., 405, 406
Muller, D. E., 62, 192
Muller, F., 293, 294, 295
Müller, K., 379
Mullin, C. J., 17
Mulvey, J. H., 272, 273
Munsun, R. J., 380
Muntz, J. A., 354, 355, 356, 359, 363, 364
Mytton, J. W., 412

N

Nagashima, K., 415
Nagle, D., 222, 228, 232, 233
Nakanishi, M., 408, 409, 411
Naldrett, S. N., 405
Nanjo, K., 363
Nathans, R., 13, 18, 22, 23, 26, 28
Neary, G. J., 380
Nedzel, V. A., 145
Neiler, J.H., 136
Nelson, D., 228, 232
Nencini, G., 424, 443
Neuerburg, G. J., 419
Neumann, H.M., 168
Neumayr, A., 385
Neve, R.A., 368
Neworaschkin, J. P., 368
Newth, J. A., 294, 302, 310
Nichols, R. T., 59
Nickson, J. J., 378
Nicola, M., 367
Nicolaysen, L. O., 408, 417, 425, 426
Niday, J. B., 71, 74
Nielsen, C. E., 343
Nier, A. O., 57, 402, 403, 404, 416, 417, 419, 420, 439, 441
Nier, D. T., 406
Nijgh, G. J., 58
Nims, L. F., 359, 391, 392
Nishimura, S., 415
Nishio, J., 411
Nizza, P., 377
Noe, J. D., 94, 96
Nord, F. F., 356
Norin, R., 408
Norinder, H., 410, 411
Norris, W. P., 364, 381, 382
North, N., 359
Novey, T., 61
Novick, A., 406
Noyes, P., 386

O

Oakley, D., 235, 240
Occhialini, G. P. S., 271-314; 191, 220
O'Ceallaigh, C., 272, 273, 295
Odian, A., 29
Ogawa, S., 45, 46
Okabe, I. S., 411
O'Kelley, G. D., 55, 62
Olbert, S., 288
Oliver, W. F., 59
Olkowsky, J., 73
Olmstead, C. A., 368
Olsen, J. L., 55, 62
O'Neill, G. K., 17

O'Neill, T., 383, 388
Oppenheimer, J. R., 317
Ord, M. G., 351, 359, 377, 390, 392
Ore, A., 192, 196, 206
Orear, J., 232
Osborn, G. K., 384
Osborne, L. S., 222, 235, 240
Oshima, Y., 411
Oster, H. L., 385
Otsuki, S., 264
Overbeek, A. J. W. M. v., 96
Overhauser, A. W., 38, 41
Owen, H. R., 416, 439
Owen, J., 46

P

Pabst, A., 409, 427
Page, D. I., 287
Page, L. A., 191
Pahl, M., 423
Paigen, K., 391
Pais, A., 282
Pake, G. E., 33-50; 45, 46
Pal, Y., 306
Palazzi, D., 384
Palmatier, E. D., 340, 342
Palmer, G. H., 416
Palumbo, D., 407
Paneth, F. A., 51, 60, 406, 410, 422, 423, 428, 435
Panofsky, W., 222, 248
Papp, G., 104, 108
Pappas, A.C., 73, 75
Paris, R., 384
Parker, F. L., 412
Parker, G. W., 34
Parks, J. M., Jr., 426
Parr, W. H., 383, 388, 391
Passeau, L., 387
Passman, S., 254, 255
Pasternack, S., 194
Patro, A. P., 179
Patt, H. M., 351, 360, 377, 380, 386, 387, 391
Patterson, C., 89, 90, 403, 407, 408, 410, 417, 419, 420, 424, 435, 436, 441
Patti, F., 378, 379, 388
Paul, D. E., 46
Pauli, W., 261
Paulissen, L. J., 386
Paull, J., 387
Pavlova, T. G., 424
Payne, A. H., 367, 391
Pearson, W. N., 388
Peaslee, D., 193
Peixoto, F., 415
Pellas, P., 421
Peppard, D. F., 414
Percival, W. S., 94
Perey, M., 177
Perkins, D. H., 310
Perkinson, J.D., Jr., 382
Perlman, I., 157-90; 74, 159, 167, 168, 172, 174, 175, 176, 177, 178, 179, 180, 183, 186, 187
Perlman, M. L., 23
Permutt, S., 381
Perrings, J. D., 390
Perry, A. M., 17
Perry, C. L., 54
Perry, J., 228, 232
Pesteil, P., 129
Petch, H. E., 44, 54, 98, 100, 101, 102, 104, 105, 175
Peters, B., 277, 306
Peters, R. A., 358
Peterschmitt, E., 407
Petersen, D. F., 351-76; 365, 366, 367
Peterson, V., 235, 238, 239, 244, 254, 255
Petrakis, N. L., 364
Pettersson, H., 427, 437
Pevsner, A., 147
Peyrou, C., 293, 294, 295
Pfotzer, G., 413
Phillips, H. B., 121
Phillips, P. H., 357, 370
Piatier, H., 182
Piccioni, O., 227, 228, 229, 232
Picciotto, E., 406, 408, 418, 427
Picciotto, E. E., 407, 408, 415
Piccirillo, R. T., 385
Pichat, L., 129
Piemonte, A., 369
Piénkowski, S., 408
Pierce, A. P., 412
Pierce, F. T., 368
Pierpoint, W. S., 387
Piggot, C. S., 408
Piguory, L., 377
Pines, D., 23, 24
Pinoir, R., 412
Pinson, E. A., 382
Pinson, W. H., 410, 435, 436, 442
Pirenne, J., 211, 212
Pirie, A., 381
Pirotte, M., 386
Platzman, R. L., 347
Pohl, E., 407
Pohle, E., 367
Pomeranchuk, I., 193
Pond, T. A., 201, 202, 210
Poole, J. H. J., 408, 442
Porschen, W., 170, 405
Portis, A. M., 46
Post, R. F., 102, 121
Potter, R. L., 366
Potter, V. R., 358, 359, 365
Potzger, J. E., 431, 432
Poulis, N. J., 45
Pound, R. V., 43, 44
Pouradier, J., 412
Powell, C. F., 277
Powell, J. L., 196
Powers, R. I., 61
Präg, R., 422, 423
Praytor, E. H., 361
Preiswerk, P., 63, 169, 172
Present, R. D., 23, 73
Preston, M. A., 179, 180, 184
Preston, W. M., 126
Prestwood, R. J., 60
Prevot-Bernas, A., 390
Priest, S. G., 392
Primakoff, H., 207
Pringle, R. W., 129, 405
Pringsheim, P., 123, 131
Prosser, C. L., 360, 363
Pryce, M. H. L., 168, 194
Puckett, N., 391
Purcell, E. M., 43, 45
Putnam, J. L., 53, 58, 63
Pyle, G., 159

Q

Quastler, H., 360, 379
Quimby, G. I., 432
Quinn, W. E., 45

R

Rabbitt, J. C., 401, 429
Radcliffe, J. M., 196
Radicatti, L. A., 18
Rafter, T. A., 429, 431
Rainey, F., 431
Rainwater, J., 20
Rajewsky, B., 378, 389
Rambach, W. A., 391
Ramm, C. A., 166
Ramsey, N. F., 34, 35
Randall, J. T., 121
Rankama, K., 443
Rankin, D., 65
Ransom, R., 391
Rasetti, F., 174, 207
Rasmussen, J. O., 177, 182, 185, 187
Rasmussen, J. O., Jr., 170, 179, 405
Ratier, J., 405
Rau, R. R., 294, 304
Rauch, R. F., 369
Ravenhall, D. G., 193
Ravilious, C. F., 122, 123, 124
Rayet, P., 386
Reasbeck, P., 410, 422, 423, 435
Reding, R., 360
Reed, G. W., 72, 75
Rehbock, D. J., 382
Reid, A. F., 430
Reif, F., 45
Reifman, A., 20, 24, 28
Reiling, V. G., 142
Reines, F., 383
Reinhart, F. E., 363

Remi, B., 305
Remley, M. E., 126, 127
Reuterswärd, C., 403
Rév, K., 365
Rév, L., 365
Revelle, R., 437
Reynolds, C. D., 407
Reynolds, F. L., 177
Reynolds, G. T., 128, 129, 286, 287, 294, 304
Reynolds, H. K., 331
Reynolds, J. H., 89, 406, 414
Reynolds, J. R., 418
Reynolds, S. A., 61, 63, 64
Rhodes, B., 388
Ribe, F., 346
Rich, J. A., 209
Richardson, H. O. W., 175
Richardson, J. R., 328, 331
Richings, H. J., 104, 208
Richman, C., 250, 251
Richmond, J. E., 368
Richter, H., 405
Riemenschneider, P. A., 387
Riezler, W., 170, 405
Riggs, H. E., 391
Ring, J., 228, 232
Ring, P. J., 45
Rio, C. S. del, 13, 28
Ripelle, M. F. de la, see Fabre de la Ripelle, M.
Ritson, D. M., 277, 332
Rittenberg, D., 81
Roberts, A., 54, 228, 232, 250
Roberts, F. H. H., Jr., 430
Robinson, C. V., 63, 64
Robinson, E. S., 406
Robinson, K. W., 108
Robinson, S. C., 416, 421
Rochat, O., 272, 273
Rochester, G. D., 277, 285, 288
Rodesch, J., 391
Rodgers, J., 415, 426
Rogers, B., 412, 429, 430
Rohinger, G,, 56
Rohrlich, F., 319
Rona, E., 409, 411
Rond, T. A., 210
Root, S. W., 382
Rose, D., 58, 63
Rose, D. C., 412
Rose, M. E., 54
Rose, R. G., 382
Rosenberg, S. A., 382
Rosenblatt, D. B., 411, 414, 439
Rosenblum, S., 159, 166, 172, 174, 177
Rosenfeld, A. H., 245, 254, 255, 266
Rosenstock, H. B., 411
Rosenthal, R. L., 367
Roser, F. X., 339
Ross, M., 266, 390
Ross, M. H., 359, 365, 367
Rossel, J., 119, 133
Rossi, B., 102, 277, 287, 288, 289, 304, 341
Rossi, G. B., 159
Rostagni, A., 443
Rotblatt, J., 329
Roth, J. S., 368, 370
Rothé, J. P., 407
Rowland, T. J., 44, 45
Ruark, A. E., 192
Rubadeau, D. O., 384
Rubinson, W., 73
Ruderman, M., 228, 259, 260, 265
Rugget, R. W., 293
Rugh, R., 360, 377, 382, 385, 386, 388, 392
Rüling, J., 411
Runnels, R. T., 408
Russell, R. D., 403, 416, 417, 420, 421, 423, 426, 439, 440, 441, 445
Rust, J. H., 378, 385
Ruth, H. J., 386
Rutherford, E., 406
Rutledge, W. C., 58

S

Sachs, A., 222, 228, 232
Sachs, D. C., 328, 331
Sachs, R. G., 14, 15, 16, 25, 239, 266
Sadauskis, J., 342, 343
Safford, R., 289, 304
Saika, A., 46
Saito, N., 401-62; 406, 408, 411, 412, 418
Sakakura, A. Y., 412
Salerno, P. R., 382, 387
Salomon, K., 368
Salpeter, E. E., 46
Salvani, G., 128
Salzman, F., 263
Sanderman, L. A., 408, 411, 429
Sanders, P., 380, 386
Sanderson, M. H., 383
Sands, M., 236, 248
Sands, R. H., 45
Sangster, R. C., 114, 123
Santangelo, M., 407, 424, 441, 443
Santomauro, L., 412
Sapadin, L., 377, 385
Saunders, D. F., 407, 426, 427
Sawyer, C. H., 369
Sawyer, G. A., 403, 434
Saxon, D., 434
Sayag, G.-J., 402
Sayeg, J. A., 379
Scarsi, L., 271-314; 220
Schaeffer, O. A., 414, 446
Schardt, A. W., 134
Scharff, M., 327, 330
Scharff-Goldhaber, G., 172, 405
Schechmeister, I. L., 386
Scheminzky, F., 409, 411
Schenck, J., 134, 136
Scherb, F., 29
Schiff, H., 344
Schiff, L. I., 17, 102
Schintlmeister, J., 168
Schjeide, O. A., 385
Schleicher, J. A., 408
Schlesinger, M. J., Jr., 368, 384
Schluter, R. A., 251, 257, 258
Schneider, E. E., 46
Schneider, H., 54
Schneider, M., 388
Schneiderman, H., 355
Schoenberg, M., 332
Schoenberg, M. D., 355
Schoenwetter, H. K., 99
Scholes, G., 390
Schoolman, H. M., 383
Schorr, M., 129
Schrader, E. F., 108
Schriever, B. D., 17
Schroeder, C. A., 102
Schuck, E. A., 359
Schuck, R. L., 383
Schultz, H. L., 106
Schultz, V. A., 170, 405
Schulz, A. G., 250
Schulz, R. J., 378
Schuman, R. P., 63
Schumann, G., 412
Schwachman, H., 364
Schwartz, M. C., 386
Schwarz, H. P., 391
Schwarzer, D., 406, 414, 433
Schweber, S. S., 266
Schwebel, A., 53, 59, 60, 407
Schweidler, E., 406
Schwinger, J., 212
Scott, K. G., 381, 3[illegible]
Scott, M. B., 222, 235, 240
Scott, M. R., 52, 61, 62
Scott, W. E., 73
Scudder, J., 388
Seaborg, G. T., 70, 159, 167, 168, 169, 170, 174, 180, 186, 187, 405, 406, 414
Sedlet, J., 60, 406
Segal, G., 367
Segrè, E., 28, 328, 331
Seiler, J. A., 69, 71, 73
Seitz, F., 131, 133
Seki, L., 361
Selden, G. L., 392
Selig, H., 405, 406
Seliger, H. H., 53, 58, 59, 60
Sellers, P. A., 159
Sen Gupta, R. L., 343
Sengupta, S., 169
Serber, R., 222, 248, 317
Seymour, E. F. W., 45
Shaknov, I., 194

Shamos, M. H., 412
Shapiro, M. M., 338
Sharpe, J., 343
Shavrova, N. N., 412
Shaw, P. F. D., 34
Shaw, T. M., 46
Shearer, J. W., 199, 207
Sheline, G. E., 383
Sheline, R., 406
Sheline, R. K., 59
Shepard, W. D., 232
Shepherd, H. J., 388
Shepherd, L. R., 61
Sherk, P. M., 405
Sherman, D., 254, 255
Sherman, F. G., 362
Sherr, R., 207
Shillibeer, H. A., 403, 423
Shimauchi, A., 45
Shimokata, K., 411
Shipman, J. D., Jr., 102
Shiren, N. S., 121
Shoolery, J. N., 46
Shorey, W. R. J., 52, 58, 68
Shuey, R. L., 76
Shutt, R. P., 232, 287, 308
Siegbahn, K., 55, 63, 175
Siegel, R., 201, 202, 206, 209
Siegert, A. J. F., 15, 25
Siksna, R., 410, 411
Silver, L. M., 52, 62
Silverman, A., 21, 235, 236
Silverman, M. S., 386
Silvey, G., 34
Simanton, J. R., 429, 430
Simmons, D. H., 328
Simon, D. M., 73
Simons, C. S., 378
Simons, L., 191
Simpson, O. C., 179
Sinclair, W. K., 58, 59, 62
Singer, S F., 422, 423
Singer, T. P., 354, 355, 356, 363, 364
Sirvetz, M. H., 34, 36
Skarsvåg, K., 142
Skraba, W. J., 56
Slater, L. M., 159, 174
Slätis, H., 175
Slichter, C. P., 38, 45
Sluis, K. L. V., see Vander Sluis, K. L.,
Smales, A. A., 402
Smaller, B., 106
Smith, A., 61
Smith, B. W., 75
Smith, C. L., 390
Smith, D. B., 53
Smith, D. E., 360, 384, 390
Smith, F., 360, 361, 386
Smith, F. W., 124
Smith, H. P., 354
Smith, K. F., 34
Smith, P. V., Jr., 432
Smith, W. C., 410, 422
Smith, W. W., 361, 367, 368, 386
Smits, F., 423
Snell, W. A., 412, 429, 432
Snitzer, E., 344
Snyder, H., 317
Snyder, H. S., 5, 194
Snyder, J., 263
Sobel, E., 361
Sobering, S., 129
Sogo, P. B., 34
Sommers, S. C., 385
Sowerby, 286, 287
Sparrow, A. H., 351
Spear, F. G., 377, 378
Speckman, T. W., 383
Spees, A. H., 191
Spehler, H., 367
Spence, R. D., 46
Spence, R. W., 69, 70, 76, 406
Spencer-Palmer, H. J., 402, 403
Spiers, F. W., 383
Spradling, S., 391
Sprague, G., 386
Sreb, J. H., 58, 63
Stähelin, P., 169, 172
Stallwood, R. A., 250
Standil, S., 405
Stanley, C. W., 74
Stanley, J. P., 420, 439
Stapleton, G. E., 361
Starik, I. E., 415
Stearner, S. P., 368, 377, 379, 389
Stearns, M., 235, 236
Stearns, M. B., 13, 28
Stegun, I. A., 55
Stehle, P., 191
Stein, P. C., 29
Steinberg, E. P., 69-80; 69, 71, 72, 73, 74, 75, 76, 89
Steinberger, J., 222, 228, 232, 250
Steinwedel, H., 23
Stella, A., 407, 408
Stenstrom, K. W., 369, 391
Stephens, F., 159, 174, 175, 176, 177
Stephens, S. V., 377
Stern, M., 222, 227, 228, 232
Stern, T. W., 416, 417, 439
Sternheimer, R. M., 321, 332, 333, 335, 337, 340
Stets, J. F., 392
Stetson, H. C., 428
Stevens, C. M., 159
Stevens, K. M., 386
Stevens, K. W. H., 46
Stevens, W. H., 56
Stevenson, M. L., 249, 250
Stewart, A. L., 344
Stewart, A. T., 210
Stewart, D. C., 409
Stewart, E. C., 133, 134
Stewart, R., 367, 392
Stieff, L. R., 416, 417, 418, 439
Stiller, B., 338
Stockell, A., 367, 392
Stocken, L. A , 351, 359, 377, 390, 392
Stoddard, A. E., 58
Stokinger, H. E., 381
Stone, F., 391
Stoner, A., 159
Stoner, R. D., 386
Storer, J., 382
Storer, J. B., 380, 386, 391
Stork, D., 222
Story, V. M., 380
Strandberg, M. W. P., 34
Strassmann, F., 69, 423
Straube, R. L., 386, 387
Strauch, K., 13, 108
Strome, F. C., Jr., 406
Struve, O., 445
Studier, M. H., 159, 414
Stump, R., 209
Sturm, W. J., 166
Suess, H. E., 89, 406, 412, 413, 414, 424, 429, 430, 431, 445, 446
Suess, J., 388
Sugarman, N., 72, 73, 74, 75, 405
Sugihara, T., 405
Sullivan, J. C., 414
Sullivan, M. F., 357, 363
Sunyar, A. W., 64, 172
Suryan, G., 35
Sutton, E., 391, 392
Sutton, R. B., 250
Suzor, F., 404
Swank, R. K., 111-40; 121, 129, 131
Sweeton, F. H., 54, 63, 64, 406
Swift, M. N., 379, 384, 388
Swisher, S., 386
Symon, K. R., 341
Szendrei, M. E., 114
Szteinsznaider, D., 405

T

Tahmisian, T. N., 361
Taketa, S. T., 379, 384, 388
Taketani, M., 264
Takubo, J., 415
Talley, H., 209
Talmage, D. W., 386
Tamburino, S., 407, 408
Tamm, I., 141, 263
Tani, S., 264
Taplin, G. V., 386
Taplin, R. H., 99
Tatekawa, M., 415
Tatel, H. E., 442, 443
Tauber, H., 429, 431, 432
Taubman, J., 361
Taylor, A E., 315
Taylor, C. J., 126, 127
Taylor, G. L., 419
Taylor, H. W., 405
Teasdale, J., 235, 236, 238,

239, 244, 248
Telegdi, V. L., 13, 18, 28
Teller, E., 23, 132, 347
Temmer, G. M., 42, 174
Templeton, D. H., 168
Tepperman, H. M., 383
Te Punga, M. T., 429
ter Haar, D., see Haar, D. ter
Terrell, J., 73
Terwilliger, K. M., 13, 26
Tew, J. T., 360, 391, 392
Thew, K., 52, 61, 62
Thibaud, J., 191
Thirring, W., 434
Thoai, N. van, 367
Thode, H. G., 70, 75, 76
Thomas, C. O., 123
Thomas, D. A., 62
Thomas, H. A., Jr., 412
Thomas, R. H., 58, 59, 60, 61, 62, 63, 406
Thompson, B. J., 97
Thompson, B. W., 277
Thompson, M. E., 408
Thompson, R. W., 285, 286, 287, 293
Thompson, S. G., 159, 169, 170, 174, 175, 177, 178, 179, 405
Thompson, T., 328, 331
Thomson, J. F., 377-400; 362, 366, 370, 378, 379, 384, 387, 391
Thomson, S. J., 409, 410, 422, 423, 435
Thorndike, A. M., 232, 287, 308
Thurnher, B., 385
Tillotson, F. W., 382
Tilton, G. R., 82, 89, 90, 407, 408, 410, 417, 419, 420, 425, 426, 435, 441
Ting, Y., 45
Tinlot, J., 228, 232
Titov, N. E., 402, 423
Titterton, E. W., 13
Tobaliem, J., 63, 64
Tobias, C. A., 379, 384
Tollestrup, A., 151, 235, 238, 239, 244
Tomasini, G., 306
Tomita, K., 46
Tomkins, F. S., 34, 186
Tomlinson, R. H., 425, 426
Tompkins, M., 386
Tonhazy, N. E., 369
Torney, F., 129
Torrey, H. C., 43
Tourtellotte, W. W., 362, 366, 378, 379, 391
Touschek, B. F., 283
Townes, C. M., 34
Townsend, J., 46
Treiman, S. B., 204, 304
Trembaczowski, E., 411
Trenam, R. S., 34
Triebwasser, S., 46
Trowbridge, W. V., 377
Trum, B. F., 378, 385
Tryon, L. E., 412, 429, 432
Tsivoglou, E. C., 411
Tsukada, K., 45
Tubailem, J., 52, 58, 63
Tubiana, M , 385
Tuchman-Duplessis, H., 386
Tullis, J. L., 377
Tunnicliffe, P. R., 76
Turkevich, A., 71, 72, 74, 75
Turner, J. F., 63
Tusques, J., 385
Tweedie, M. C. K., 354
Tyree, E. B., 360, 378, 390
Tytell, A. A., 355
Tzara, C., 73

U

Ubisch, H. v., 415
Ueda, T., 415
Uehling, E. A., 315-50
Umbreit, W. W., 369
Umemoto, S., 411
Umezawa, M., 172
Uphoff, D., 377
Upton, A. C., 351, 377, 380, 385, 388
Urey, H. C., 407, 434, 437, 438, 443
Urry, W. D., 409, 411, 428, 438
Utterback, C. L., 408, 411, 429
Uyeki, E., 367

V

Valadares, M., 159, 172, 174, 177
Valentine, J. M., 343
Valentine, W. N., 390
Valladas, G., 159
Vander Sluis, K. L., 185
Van Heerden, P. J., 328, 331
van Heyningen, R., see Heyningen, R. van
van Lancker, J., see Lancker, J. van
Van Lershout, R., 58
Van Nortwick, H. S., 408
Van Rennes, A. B., 101
Van Sciver, W., 136
van Thoai, N., see Thoai, N. van
Van Valkenburg, P. A., 361
Venet, A. M., 412
Venkatasubramanian, V. S., 407, 424
Vermund, H., 391
Verster, N. F., 58
Vette, J., 235, 238
Vevasseur, J., 384
Vigneron, L., 274
Vincent, D. H., 53
Vinogradov, A. P., 420, 439, 441
Visscher, W. M., 266
Vogel, H. H., Jr., 378, 379, 380
Vogel, M., 392
Voight, A. F., 61
Voitkevich, G. V., 441
Volchok, H. L., 413, 426, 428, 430
Volkoff, G. M., 44
Von Dardel, G., 16
von Erichsen, L., see Erichsen, L. von
von Friesen, S., see Friesen, S. von
Vorteresz, V., 365
Voyvodic, L., 272
Vries, H. de, 429, 430

W

Waddington, C. Y., 306, 310
Waggoner, M. A., 54
Wagner, F., Jr., 406
Walcher, W., 404
Waldron, E. C., 170, 405
Walker, J., 175
Walker, R., 235, 236, 238, 239, 240, 244, 248
Walling, E., 425
Walske, M. C., 323, 327
Walters, M. C., 406
Waltner, A. W., 16
Wang, S. C., 386
Wangsness, R. K., 42
Wank, F. J., 408
Wapstra, A. H., 168
Warburton, E. K., 133, 134
Ward, J. C., 194, 261
Wardle, G., 422
Warner, W. L., 368
Warren, J. B., 207
Warren, S., 351, 382
Warshaw, S. D., 57, 145, 316, 328, 331, 340, 344, 347
Wase, A., 368, 370
Wasserburg, G. J., 89, 403, 404, 423
Wasserstein, B., 415
Watari, W., 264
Waters, A. C., 408
Watkins, G. D., 44
Watson, B. B., 207
Watson, K., 219-70; 222, 224, 225, 235, 236, 237, 241, 242, 243, 245, 248, 254
Wattenberg, A., 29
Waxler, S. H., 368
Way, K., 52, 61, 62, 70
Weaver, A., 232
Weaver, H. E., 34, 35
Weil, J. W., 29
Weinhouse, S., 430
Weinman, E. O., 368
Weinstein, R., 216
Weinstock, E. V., 17

Weiss, J., 390
Weisskopf, V. F., 14, 18
Weissman, S. I., 46
Weizsäcker, C. F., 168
Welch, G. P., 379, 384
Wells, F. H., 96, 97, 99, 101
Wentzel, G., 266
Wentzel, W. A., 151
Wenzel, W. A., 331
Wessel, G., 34, 35, 36
West, H. I., 134
Westcott, C. H., 99
Westman, A., 385
Westphal, U., 392
Wetherill, G. W., 76, 89
Weymouth, P. P., 387
Whalin, E. A., 17
Whaling, W., 331
Wheatley, J., 206, 214, 215
Wheeler, J. A., 28, 78, 168, 185, 192, 194
White, G. R., 274
White, M. G., 407, 408
White, N. G., 369
White, R. L., 34
Whitehead, M. N., 250
Whitehouse, W. J., 70, 76
Whiting, F. B., 425
Whittemore, W. L., 232, 287, 308, 340
Whittier, A. C., 346
Whyte, G. N., 58
Wick, G. C., 332
Wickman, F. E., 402, 419, 420, 425, 443
Wiedenbeck, M. L., 403, 404, 434
Wiegand, C., 96, 106
Wilcox, H. A., 250
Wilding, J. L., 378
Wiles, D. R., 75
Wilgain, S., 408
Wilkening, M. H., 411
Wilkerson, M. C., 367, 392
Wilkins, M. H. F., 121
Wilkinson, D. H., 17, 18
Wilkinson, G., 69
Willard, D., 289, 304
Williams, D., 45
Williams, D. L., 412, 429, 430
Williams, E. J., 321
Williams, F. C , 316, 329
Williams, G. A., 34
Wilson, E. J., 410, 422
Wilson, H. W., 404, 406
Wilson, J. E., 378, 379
Wilson, J. G., 275, 340
Wilson, J. T., 415, 416, 420, 439, 440, 443
Wilson, R., 13, 63, 250
Wilson, R. R., 29
Winckler, J. R., 147, 150, 339, 342
Winhold, E. J., 77
Winsberg, L., 71, 73
Winslow, A., 21, 22
Winslow, G. H., 179
Winter, R. G., 406
Wolfenstein, L., 193, 197, 213
Wolfgang, R. L., 413
Wolfson, J. L., 175
Wolkowitz, W., 359
Wood, B., 377
Wood, M., 52, 61, 62
Woodcock, C. C., 382
Woodward, R. N., 402, 403
Woodward, W. M., 17
Worlock, R., 235, 238, 239, 244
Wouthuysen, S. A., 265
Wright, C., 257, 258
Wright, G. T., 127
Wu, C. S., 55, 61, 194, 209, 214
Wu, S. S., 19
Wyant, D. G., 408
Wyard, S. S., 55
Wybourn, R. C., 388
Wyckoff, H. O., 142
Wyckoff, J. M., 174

Y

Yadov, H. N., 344
Yaffe, L., 52, 58, 72, 73, 75
Yamagata, N., 411
Yamagata, Y., 46
Yamaguchi, Y., 172
Yang, C., 193
Yasin, M., 306, 310
Yodh, G. B., 257, 258
Yokoyama, Y., 411, 412
York, C. M., 288, 294
Yoshida, S., 29, 172
Young, J. C., 386
Young, R. W., 415
Ypsilantis, T. J., 179, 180
Yu, T. P., 96
Yuan, L. C., 227, 228, 232
Yuan, L. C. L., 150

Z

Zadorozhnyi, I. K., 420, 439, 441
Zaffarano, D. J., 55
Zahn, C. T., 191
Zeldes, H., 45, 58, 62
Zeller, D. E. N., 426
Zeller, E. A., 381
Zeller, E. J., 426
Zeller, J. H., 377
Zemansky, M. W., 120
Zerwic, M. M., 359, 365
Zeuner, F. E., 415, 428, 431
Zimmerman, J. R., 46
Zuber, K., 191
Zwaan, C., 406
Zykov, S. I., 420, 439, 441

SUBJECT INDEX

A

Abundances, isotope, 402-10, 435-37
Accelerators, 1-11
Adaptation syndrome, 384
Air, Cerenkov radiation in, 151
Alkali halides
  as scintillators, 131-37
Alkali metals
  positron life in, 208-9
Alpha decay
  energy systematics for, 166-69
  theory of, 178-87
  see also Radioactivity, alpha
Alpha particles
  Cerenkov counting of, 147
  existence in nuclei of, 186-87
  radiation effects of, 364
  scintillation by, 126, 135-37
Alternating-gradient focusing, 5-7
Amplifiers
  distributed type, 94-96
  linear, 94-96
  "lock-in", 36
  in nuclear counting, 94-98
  photomultipliers and, 98
  secondary emission pentodes in, 96-97
Analysis, chemical
  with stable isotopes, 81-91
Animals, radiation effects on, 377
Annihilation
  of positronium, 207-10
  three quantum process of, 196-98
  two quantum process of, 195-96
Anthracene, as scintillator, 114, 126
Anthropology, 430-32
Antibiotics
  and postirradiation infection, 386
Archaeology, 430-32
Argon^{40}, 403, 423, 442
Astatine^{211}
  radiation toxicity of, 387
Atmosphere
  radioactivity in, 442-43
Atomic beams
  detector for, 35-37
Atomic collisions, 315-17

B

Bactericides
  and radiation therapy, 386
Barium isotopes
  fission yield of, 72-73
Beryllium^{7}, 414
Beryllium^{9}, 17
Beta decay
  energy balance and, 169-70
Beta emitters
  backscattering in, 404
Beta rays
  anthracene scintillation by, 114
  biological effects of, 381-83
  Cerenkov counting of, 145, 155
  lethal effects of, 377-81
  as scintillation exciter, 118, 126
  spectrometry of, 54-55
  standard radionuclides spectra, 56-64
Bevatron, 4
Bimolecular decay, 121, 136
Biochemistry
  carbohydrate metabolism and, 356-63
  fat, protein metabolism and, 367-69
  phosphorous metabolism and, 363-67
  radiation effects and, 351-71
  basic mechanisms of, 352-54
  direct cell damage in, 353
  studies in vitro of, 354-56
  toxic intermediates in, 352-53
  see also Radiobiology
Birmingham proton synchrotron, 3-4
Bismuth^{209}, 405
Bismuth^{210}, standards of, 60
Branching ratio
  measurement of, 81
Bremsstrahlung
  nuclear absorption of, 13

C

Calcium^{40}, 424, 435, 441
Calorimetry, radioactive, 52-54
Carbohydrates
  metabolism of, 356-63
Carbon^{14}
  half life of, 56-57, 406-7, 429-32
  natural distribution of, 412-13
  standard of, 56-57
Carbon dioxide
  radiation effects on output of, 360-61
Catalase, metabolism of, 370
Cataracts, 380-81
Cells, radiosensitivity of, 353
Cerenkov counters
  see Counters, Cerenkov
Cerenkov radiation
  and stopping power measurement, 329, 332, 337, 340
Cesium^{137}
  fission yield of, 72
  as scintillation exciter, 118
Charge, nuclear
  distribution in fission of, 73-74
Charge independence
  and nature of τ-meson, 282
  in pion-nucleon reactions, 219, 224-27, 245, 260
Chemical analysis
  see Analysis, chemical
Chemistry
  of positronium, 206
  see also Biochemistry
Cholinesterase, metabolism of, 369-70
Chopper, in atomic beam detector, 36
Chromium^{51}, 64
Citric acid, synthesis of, 358-59
Cloud chambers
  continuous type, 433
  errors in use of, 276
  as meson detector, 275-77
Cobalt^{60}
  biological effects from, 378
  standards of, 57-58
Coincidence circuits
  in Cerenkov counting, 154
  differential types, 108
  Rossi type, 102
Collisions, nucleon-nucleon, 245-60
Conduction electrons
  and nuclear spin polarization, 36-42
Cosmic history
  radioactivity and, 439-46
Cosmic rays
  and Cerenkov counters, 147, 151
  and meteoritic helium, 422-23
  and radiocarbon dating, 413, 423

Cosmology
radioactivity and, 401-46
Cosmotron, 1-3
heavy meson production with, 287, 308
Counters, Cerenkov, 141-56
in cosmic ray studies, 147, 151
focusing type, 152-55
gas type, 150-51
intensity in, 148-50
nonfocusing, 144-47
with pulse discrimination, 146-47
transmission type, 147
in velocity threshold detection, 145
Counters, gas, 56
Counters, scintillation
see Scintillators
Counters, 4π type, 53
Counters, and window, 53
Counting
absolute beta, 53
coincidence, 52-55, 102, 108, 154
fast electronics and, 93-109
Cross sections
for photonuclear reactions, 13-30
for pion-nucleon reactions, 222, 229-60
Crystals, scintillation of, 131-36
Curie, definition of, 51
Curium, spontaneous fission of, 76
Cysteamine, 386, 391
Cysteine, 363, 380, 386

D

Decay schemes, 54-55
Depolymerization
radiation, 390
Detection
nuclear, 93-109
Deuterons
fission of U with, 75
quadruple moment of, 35
photodisintegration of, 16-17
production of pions from, 234-45
radiation hazard from, 379
scintillator response to, 126
Diet
radiation toxicity and, 384
Disintegration rate
determination of, 52-54

E

Earth, history of, 439-46
Elastic waves, 119, 123
Electric fields
and positronium formation, 202, 206
Electrodynamics, quantum
meson theory and, 260
and positronium, 191-217
Electron shells
and heavy particle penetration, 322-27
Electronics, fast, 93-105
amplifiers in, 94-98
Electrons
binding energies of, 322-27
capture by charged particles of, 344-47
Cerenkov counting of, 145, 155
energy loss by, 319-20
in positronium, 191-217
Electroscope, recording, 52
Elements, age of, 445-46
Endocrines, and radiation toxicity, 384-86
Energy loss
in charged particle penetration, 317-22
average of, 321
Cerenkov radiation and, 336-38
electron binding and, 322-27
electron capture and, 344-47
of emulsions, 338-39
of gases, 340
ionization and, 342-43
for low energy particles, 347
polarization effects in, 321-22, 331-40
of scintillators, 339-40
statistical theory of, 330-31
Enzyme reactions
radiation effects on, 351-71
purity and, 355
in vitro, in vivo compared, 356, 363-64
Enzymes
assays in irradiated tissues, 362
in radiation damage, 381
Exchange
in nuclear interaction, 15, 28
Excitation potentials, atomic, 334-35
Explosions, nuclear, 412
Extinct natural radionuclides, 402, 414, 433

Eyes, neutron effects on, 380-81

F

Fatigue, and radiation toxicity, 384
Fats, metabolism of, 367-69
Fission
angular distribution of fragments in, 77
charge distribution in, 73
closed shell effects in, 74-76
collective nuclear model and, 78
high-energy, 74, 77
neutron induced, 70-76
by photons, 75, 77
products of, 69-78, 89
radiochemistry and, 69-78
spontaneous, 76-77, 89
ternary, 73
Fission fragments
electron capture by, 346
scintillator response to, 136
Fission isotopes
analysis with, 90
Fission yield
measurement of, 89
Fluorescence
scintillation and, 112, 120
Foods, radiation toxicity and, 384
Fossils, uranium in, 408
Free radicals
and hyperfine resonance, 46
in radiobiology, 389
Freon-12
ortho-para-positronium and, 200

G

Galena, geochronometry and, 420-21
Gallium^{72}, radiation toxicity of, 382
Gamma rays
absorption by nuclei of, 13-30
in alpha decay, 172-78
detection of, 150, 155
lethal effects of, 377-81
mass absorption coefficients for, 55
scattering of, 28-29
scintillation by, 118, 137
spectrometry of, 54-55
Gases
Cerenkov radiation in, 150-51
energy loss of muons in, 340
and tracer techniques, 88-90

Geochronometry, 405, 415-39
argon method, 403-4, 423-24
calcium^{40} method, 424
chemical method, 415
"extinct" natural radionuclides and, 433
isotope dilution analysis and, 89
lead isotope methods, 402, 406, 415-21
potassium^{40} method, 423-24
radiation damage method, 415, 426-27
Ra-Io method, 427-29
strontium method, 424-26
Geologic time
see Geochronometry
Geology
age of earth and, 415-39
"extinct" natural radionuclides in, 414-15
induced natural radionuclides in, 412-14
natural radionuclides in, 407-12
radioactivity in, 401-46
Geophysics, 401-46
Germanium diodes
in coincidence circuits, 106
in pulse analyzer, 101
Glaciation, dating of, 431, 433
Glands, radiation effects and, 357, 384-86
Glucose, absorption of, 359
Glycogen synthesis, 359
Gold, alpha emitting isotope of, 170
Gold^{198}
nuclear data on, 62
radiation toxicity of, 382
Granite
helium in, 421
natural radioactivity of, 419

H

Half life
of alpha emitters, 178
determination of, 52
of standard nuclei, 56-64
Heavy charged particles
passage through matter of, 315-47
Heavy elements, alpha decay of, 157-87
Heavy mesons
see Mesons, heavy
Helium ions
capture of electrons by, 346
Helium isotopes
in geology, 413, 421-28
Hibernation
radiation injury and, 391
Hormones, radiation treatment and, 386
Hydrogen
Lamb shift in, 46
molecular beam studies of, 35
see also Protons, Deutrons, Tritium
Hydrosphere
Carbon^{12}, tritium in, 412-14, 432-33
uranium, radium in, 409-12
Hyperfine spectra, 33-47
Hyperons
in S- and V- events, 288-89

I

Ice age, dating of, 431
Igneous rocks, composition of, 407-10, 419-23, 435
Impurities, effect on scintillators of, 124-25, 129
Independent particle model
see Nuclear Models
Insulators, positron life in, 209
Internal conversion, 54
Iodine
radiation effects on intake of, 361
Iodine^{131}
fission yield of, 72
radiation toxicity of, 382
standards of, 58-59
Ion optics, 5-7
Ionium
in geochronometry, 427-29
and ocean sedimentation, 427-29
Ionization
and charged particle penetration, 342-43
in liquid systems, 352, 354-56
in photographic tracks, 273-74
in radiobiology, 389
in scintillation process, 111-12
in atomic beam detector, 36
Iron isotopes, nuclear data on, 63
Isotope enrichment, 430
Isotopes, stable
analysis by dilution of, 81-91
evaluation of, 83-86
method of, 81-83
tracer preparation for, 86-90
supply of, 91
Isotopic spin, 18, 225-27, 260

K

K-capture
in Cr^{51}, Zn^{65} decay, 64
K-particles
interaction at rest of, 306-8
sign ratio in decay of, 305-6
see also K-mesons
Krypton isotopes, fission yield of, 72

L

Lanthanum^{138}, 405-6
Lead^{210}, standards of, 60
Lead isotopes
abundances of, 402, 415-21
in Th minerals, 417-18
in U minerals, 415-17
Lethal dose
LD_{50} tabulation of, 377
mechanisms in, 389-93
time factor in, 378-379
Light nuclei, electron capture by, 346-47
Liquids, as scintillators, 128-30
Lithium ions
Cerenkov counting of, 147
Lithium isotopes, nuclear resonance, 41-44
Liver, radiation effects on, 391
Lucite, in Cerenkov counters, 145, 148, 153
Luminescence
Cerenkov, 141-56
decay of, 120, 121
Lutecium^{176}, 405-6

M

Magic numbers
see Nuclear models
Magnetic moment
of positronium, 210-17
Magnets
design of, 5-7
of proton synchrotrons, 1-4
Mars, radiogenic heat of, 437
Mass, of heavy mesons, 281, 287, 290, 300, 309
Mass spectrometer
as analytical tool, 81-91
in fission yield measurements, 70, 74-75
and isotope dilution analysis, 81-91
Mercury, alpha emitting isotope of, 170
Mesons
cosmotron production of, 2
interaction of photons with, 17, 26, 29
theory of, 260-66
Mesons, heavy, 271-311
cloud chamber detection of, 275-77, 288-95
nomenclature for, 276-77
photographic detection of, 271-75
see also π-mesons, etc.

K- Mesons
definition of, 276
table of data on, 296-99
V-Mesons
decay of neutral, 286
definition of, 277
neutral type, 285-88
θ-Mesons
definition of, 277
neutral, mean life and decay of, 286-88
K-Mesons, 295, 301-2
μ-Mesons
Cerenkov counters and, 146-150
energy loss in gases of, 340
energy loss in scintillators of, 339-40
in K-meson decay, 301, 304-6
in S-particle decay, 293
π-Mesons
Cerenkov counters and, 150, 153
and charged V secondaries, 294
inelastic scattering of, 227, 230
in K-particle decay, 302-5
in neutral V-meson decay, 286
in n, p exchange, 15
from nucleon-nucleon reactions, 245-60
photoproduction of, 222, 234-45
angular distribution in, 239
resonance model and, 236-45
reactions with nucleons of, 219-69
angular momenta and, 220-24
charge independence and, 224-26
energy dependence of, 221-24
general principles of, 220-27
isotopic spin and, 225-27
scattering of, 220-24, 227-34
angular distributions, 232
in S-particle decay, 289, 292-93
τ-Mesons
decay of, 277, 282-83
definition of, 276
mass of, 279-81
mean life of, 281
in π-meson decay, 277
nature of, 282-85
Q of, 278, 281
spin, parity of, 283, 285
χ-Mesons, 303
Metabolism, radiation effects on, 356-70, 391
Metals
nuclear spin polarization in, 36-42
positron life in, 208-9
Meteorites
analysis of, 82, 90
composition of, 84, 90, 409-10, 413, 420-23, 435-37, 441-42
Meteorology
tritium distribution and, 433
Microanalysis
with stable isotopes, 81-91
Microwave spectroscopy, 33-47
Minerals
radioactivity in, 409
scintillations in, 137-38
Molecular beams, 35
Molecules
and nuclear resonance, 45-46
Moments, nuclear
tabulation of, 34

N

Neodymium, alpha emitting isotope of, 170
Neodymium^{144}, 405
Neptunium^{237}, natural, 414
Nervous system
and radiation exposure, 389-90
Neutrinos
and terrestrial heat, 434
Neutrons
binding energy of, 168
cosmotron production of, 2
"effective charge" of, 14, 17
fission induced by, 70-76
fluid model of, 23
nuclear binding of, 74-76
photoproduction of pions from, 234-45
radiation hazard from, 364, 379-81
radiative capture of, 16, 18
scintillation detection of, 134, 136
Nitric oxide
and ortho-para-positronium, 199
Nitrogen mustards, 359
Nuclear emulsions
see Photographic emulsions
Nuclear forces
meson theory and, 260-66
and pion-nucleon reaction, 219-69
see also Nuclear models
Nuclear geology, 401-46
Nuclear models, 19-28
and alpha decay, 175, 178, 186
collective, 23, 78
quasi-deuteron and, 22, 29
shell model, 19-21, 74, 76
subunit model, 22
Nuclear radius, 181
Nuclear shells, 74-76, 168-69, 172-78, 181
Nuclear size, 20
Nuclear spins
see Spins, nuclear
Nucleons, pion interaction of, 216-69

O

Oceanography
Ra, Io in sediments, 427
radiogenic heat and, 437
Optical systems
in Cerenkov counters, 152-55
Organic compounds
labelled, 56
radiation effects on, 354-56
Orogenics, radioactivity and, 416
Orthopositronium
annihilation radiation from, 201-5
Oxygen, radiation effects on consumption of, 360

P

Pair production, 55, 191
Parabiosis, 388
Parapositronium, 192, 199
Penetration, of heavy charged particles, 315-47
Petroleum, radiocarbon in, 432
Phenomenology
in pion reaction theory, 219
Phosphorescent decay, 121
Phosphorus, metabolism of, 363-67
Phosphorus^{32}
in radiation toxicity studies, 381
standards of, 59-60
Photodisintegration
of light nuclei, 16-19
see also Reactions, photonuclear
Photoeffect, nuclear, 14-30
Photofission, 75, 77
Photographic emulsions
angle measurements in, 274-75
errors in track measurements in, 272-73
grain count in, 338-39
K-particles in, 259-310
as meson detector, 271-75
range measurements in, 274
scattering measurements in, 272-73

use in georadiochemistry, 407-8
Photomultipliers, 98
in Cerenkov counting, 145, 148-50
spectral response of, 112-14
time constants of, 120
use with scintillators of, 114, 116
Photons
in Cerenkov radiation, 141-44, 148-50
meson interaction of, 17, 26, 29
nuclear interaction of, 13-30
in positronium annihilation, 193-98
and production of pions, 222, 234-45
in scintillation process, 111-12, 115, 119
see also Gamma rays, X-rays
Photonuclear reactions
see Reactions, photonuclear
Pions, see π-Mesons
Plasma oscillations
in n, p fluid model, 24
Plastics, as scintillators, 129-31
Plutonium
fission of, 69-78
natural, 414
poisoning by, 383
radiation toxicity of, 381
Polarization
effects in charged particle penetration, 331-40
of nuclear spins, 36-42
of positronium annihilation quanta, 194, 197
Polonium, radiation toxicity of, 381
Positronium, 191-217
annihilation in condensation of, 207-10
detection of, 200-1
discovery of, 198-200
fine structure of, 210-12
formation in condensed media of, 207-10
formation in gases of, 198-206
momentum prior to annihilation, 207
optical radiation from, 196
ortho state of, 192, 199
para state of, 192, 199
polarization of annihilation quanta, 194, 197
theory of annihilation of, 193-98
Zeeman effect in, 212-17
Positrons
energy loss of, 391-20
lifetime in solids of, 207-10
production of, 191
Potassium^{40}
in geological studies, 403, 410, 422-24, 435-36, 442
Potential barrier, 179, 184
Prophylaxis, radiation, 386-89
Protein metabolism, 367-69
Protons
counting of, 145-46
from deuteron disintegration, 16, 17
electron capture by, 345-47
fluid model of, 23
meson production and, 245-60
neutron capture of, 16
photoproduction of, 28
photoproduction of pions from, 234-45
scattering of pions by, 227-34
scintillator response to, 126, 135
in stopping power measurement, 328
thorium fission by, 77
see also Synchrotrons, proton
Pulse height analysis, 100-1, 146-47

R

Radiation
annihilation, 191-98
Cerenkov, 141-44, 148-50
in charged particle penetration, 318
Radiation damage
in geology, 421, 426-27
Radiation injury
treatment of, 352-53
Radiation protection
with cysteamine, 386
with cysteine, 380, 386
with detoxifying agents, 383
with endocrines, 385
with hormones, 386
Radioactivity
in geology, cosmology, 401-46
standards of, 51-65
and terrestrial heat, 434-35
units of, 51-52
Radioactivity, alpha, 157-87
absolute energies in, 166
complex spectra in, 171-72
decay energies in, 158-71
tabulation of, 160-65
energy balance cycles in, 169-70
energy profile for, 159
of even-even nuclides, 172-76, 182-85
of odd-odd nuclides, 177-78, 185-87
of rare earths, 170-71
spin effects in, 185-87
standards in, 166
theory of, 178-87
Radiobiology, vertebrate, 377-93
factors in radiosensitivity, 383-89
mechanisms of lethal action, 389-93
radiation toxicity in, 377-83
time factor in, 378-79
Radiocarbon, see Carbon^{14}
Radiochemistry, of low energy fission, 69-78
Radiofrequency spectroscopy of nuclei, 33-47
Radiogenic heat, 434-39, 446
Radiolead
half life of, 406
in nature, 411-12, 418-21
Radiomimetic chemical, 359
Radionuclides
and isotope dilution analysis, 90
polarization of, 42
spins, moments of, 34, 42
Radium
in nature, 410-12
standards of, 60
toxicity of, 364
Radium D-E, standards of, 60-61
Radon, in nature, 402, 411, 416
Ranges
in photographic emulsions, 274
of protons, alphas, 347
Rare earths
alpha emitters in, 170-71
fission yield of, 72
Reactions, photonuclear, 13-30
of deuteron, 16-17
experimental data on, 13
integrated cross sections for, 25-28
of light nuclei, 17-19
and nuclear models, 19-28
products of, 28-29
and radioactive capture, 18
theories of, 14-30
Resolution
of coincidence circuits, 101, 105, 108
of scintillators, 93
Resonance, nuclear, 34-47
Resonance theory
of photoproduction of pions, 237-45
Rhenium^{187}, 405-6
Rubidium^{87}, 404, 410, 426

S

S-particles, 288-93
  detection of, 288-89
  frequency of, 294-95
  mass, lifetime, decay data on, 290
Samarium^{147}, 405
Scalers, fast, 99
Scattering, in photographic emulsions, 272-73
Scintillators, 111-38
  alkali halides as, 131-37
  amplifiers for, 94-98
  basic process in, 111-12
  in beta, gamma spectrometry, 55, 118
  in C^{14} measurements, 430
  decay times of, 117, 119-23
  efficiencies of, 113-19
  electronics and, 93-109
  energy loss distributions in, 339-40
  in health monitoring, 383
  impurities, effects in, 119, 124-25, 129
  inorganic, 131-38
    tabulation of, 138
  organic, 123-31
    tabulation of, 128, 130
  quenching of, 127
  resolution of, 93-94
  self absorption in, 115, 120
  spectra of, 114, 119
  standardization of, 114
  temperature effects in, 118-19, 123
  use in positronium research, 199, 214
Sedimentary rocks
  composition of, 408, 411-13, 417-19, 423, 427-29
Selection rules
  for alpha decay, 172-78
  for positronium decay, 192-94
Shielding
  of part of body, 379, 388
  of proton synchrotrons, 1-3, 4
Showers
  in S-events, 292-93
Silver bromide
  charged particle energy loss in, 337-38
Sodium^{24}
  nuclear data on, 63
Sodium iodide
  as scintillator, 133-35
Solid state
  and nuclear resonance, 44-46
  positrons and, 207-10
  see also Scintillators
Solvents, organic
  use in scintillators of, 123-31
Spectra
  of scintillator photons, 114, 119
Spectrometry, beta, 54-55
Spectrometry, crystal, 55
Spectrometry, gamma, 54-55
Spectrometry, pair, 55
Spins, nuclear, 34-47
  polarization of, 36-42
  tabulation of, 34
Spontaneous fission, 76-77
Stable isotopes
  see Isotopes, stable
Standards, radioactive, 51-65
Stars, nuclear
  and origin of π-mesons, 281
  sigma type, 277, 302, 305-8
Stilbene, as scintillator, 123, 128
Stopping number, 322-26
Stopping power, 328
Straggling, 340-42
Strong coupling
  nuclear model, 23
Strong focusing, 5-7
Strontium^{87}, 425
Strontium^{89}, radiation toxicity of, 383
Strontium^{90}
  in pitchblende, 414
  standards of, 61
Sulfhydryl enzymes, 355, 357
Supernucleons, electron, 9-11
  bremsstrahlung from, 151
Synchrotrons, proton, 1-11
  alternating gradient focusing in, 5-7
  beam extraction in, 2
  design studies of, 9-11
  magnet design of, 5-7
  orbit control in, 8
  proton injection in, 1, 3-4, 8
  radiofrequency units in, 2, 4
  shielding of, 2, 4
  targets in, 2
Systematics, alpha decay, 166-69

T

Tellurium^{100}, natural, 406
Terrestrial heat, 434-39
  temporal variations of, 437-39
Thallium, phosphor activation by, 133-35
Thallium^{204}, standards of, 61-62
Therapy, radiation, 386-89
Thermoluminescence, 426
Thorium
  fission of, 71
  in geology, 403, 407-10
  in meteorites, 409
  microanalysis for, 90
Thyroid radiosensitivity of, 361, 385-86
Tissues, animal
  radiosensitivity of, 353
  therapy with extracts of, 387
Toxicity, radiation, 377-89
Tracers, preparation of, 86-90
Trauma, and radiation toxicity, 383-84
Tritium
  gas counters and, 63-64
  half life of, 406
  natural distribution of, 413-14
  nuclear data on, 63-64
Tritium oxide, radiation toxicity of, 382
Tungstates, scintillations of, 137-38
Tungsten
  alpha emitting isotope of, 170

U

Ultraviolet, scintillator response to, 113, 119, 121
Unicellular systems, 361-62
Units, radioactive, 51
Uranium
  in geological studies, 402, 407-10, 415-18
  microanalysis for, 84, 90
Uranium^{236}
  as terrestrial heat source, 439
Uranium isotopes
  fission of, 69-78
  radiation toxicity of, 381

V

V-events, 288-95
V-particles, 293-94
  charge symmetry of, 294
  data on charged type, 290
  frequency of, 294-95
Vacuum tubes
  photomultipliers, 98
  secondary emission pentodes, 96-98
Volcanism
  radiogenic heat and, 439

W

Water
  in Cerenkov counters, 144
Wolfram^{178}, 405

X

X-rays
effects on
enzyme reactions of, 355-70
lethal effects of 377-81
for scintillator excitation, 117, 121

Y

Yields, fission, 69-78

Z

Zinc^{65}, nuclear data on, 64-65
Zinc sulfide
scintillation of, 136-37
Zircon
Pb, U, Th, He in, 90, 419, 421